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TABLE OF CONTENTS

SCIENTIFIC SECTION

ARIZONA MEDICAL PROBLEMS

TOPICS OF CURRENT MEDICAL INTEREST

EDITORIALS

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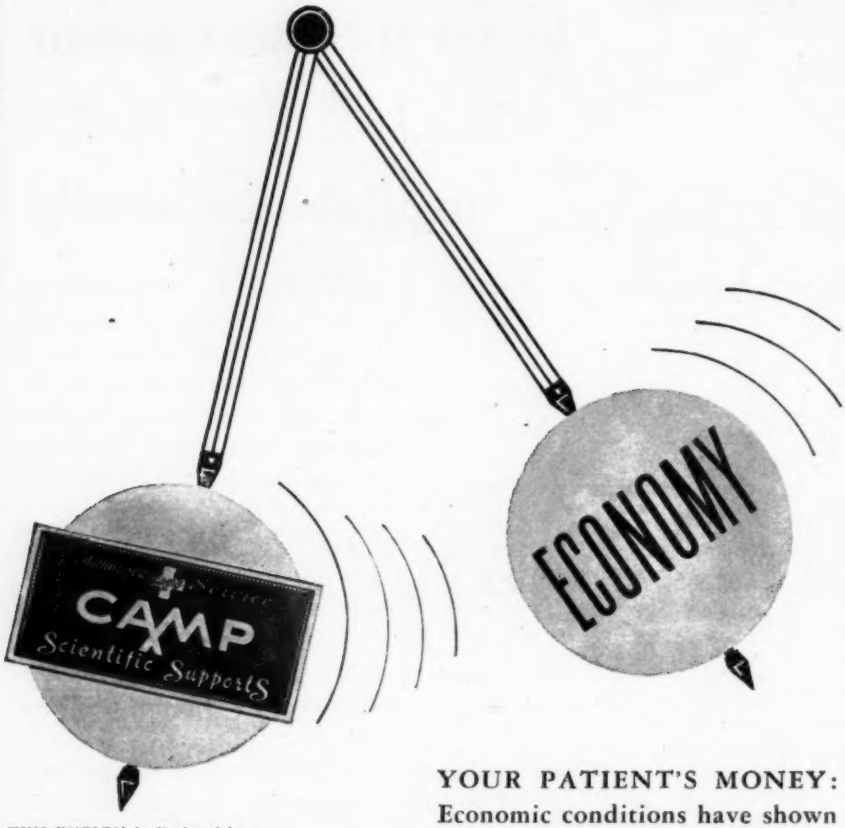

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REST AND EXERCISE IN THE MANAGEMENT OF RHEUMATIC FEVER

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PROBABLY no subject in medicine is so important as that of rest, and yet few are more confused. Such confusion is a natural result of the paradox that a patient who is resting is also doing something else. He is usually enjoying some of the benefits of fresh air, sunlight, pleasant sorroundings, good food, occupational activities and mental relaxation; and he may, in addition, be the object of more specific therapies. We cannot isolate the therapeutic effects of rest; the most we can do is to study the different situations in which it is a common factor, and by careful induction try to evaluate its precise role in the recovery or decline of the patient. Rest alone should never be applied to the management of a case; neither should it be credited with the achievements of concomitant therapies nor attacked for inadequate results which may be due to other circumstances such as postural changes.

It is pertinent to examine the harmful effects of excessive bed rest. The subject soon notices malaise and weakness and careful metabolic studies reveal deviations from normal.[1, 1a] Even during the first days of immobilization it has been possible to detect increased nitrogen excretion which may amount to 10 per cent more than that during the control period of activity.[1] Definite loss of weight becomes obvious in a few days. Examination of the ratios of nitrogen, phosphorus and sulfur excreted, suggests that most of the weight loss occurs in the muscles.[1] These changes in the muscles are matched by decalcification of the bones[2] which sometimes is great enough to produce hypercalcemia and renal calculi and present a picture simulating hyperparathyroidism.[3] This is the atrophy of disuse, a condition different and distinguishable from the atrophy which may result directly from disease.[4]

That such atrophy is related to disuse rather than to nervous influences has been shown by experimental work which thus far has been carried to its highest point of development by Young[5] and his colleagues in England. Lipschutz and Audova[6] showed that if the tendo Achilles is severed the gastrocnemius muscle rapidly atrophies even with the nerve supply intact. They attributed this atrophy to the inability of the muscle to function. It has also been shown that if the nerves to a muscle are severed and the muscle kept working by artificial stimulation, atrophy is greatly diminished and recovery hastened.[7, 8, 9] Young[5] found that not only does the muscle atrophy when it is put at rest, but so also does its nerve and he has shown by transposition experiments that the size of a nerve is dependent upon the work done by the muscle which it supplies. This agrees with the observation made many times that the area of the spinal cord which serves an amputated limb is atrophic. Young has postulated that the normal structure and function of nerves and muscles is governed by what he calls the principle of double dependence. To use his words, "they must receive some stimulus or constraint from above, and they must exercise some stimulating effect or be able to produce some constraint below."[5]

The effects of disuse are naturally not restricted to the bones, muscles and nerves, although they are most easily studied in these organs. The person who has been in bed for long

will find, when he first exerts himself, that he is easily made short of breath and this occurs out of all proportion to the somatic muscular atrophy which may have taken place. Some of this effect may be ascribed to cardiac and pulmonary atrophy. In connection with the problem of status thymico-lymphaticus it has been shown that the thymus is much smaller in children who have died after a prolonged and incapacitating illness than in those who have died abruptly. It is not unreasonable to assume that such atrophic processes are general and not merely restricted to those many organs in which they have been actually demonstrated.

Despite these harmful effects of rest in bed, no other form of therapy is more universally applied and it is well to examine the rationale behind its widespread use in so many divergent conditions. Two different meanings are attached to the term *rest*. First, it is applied to simple diminution or absence of activity or a lowered cellular metabolism of the part involved. Secondly, it is used to denote absence of motion. Probably these two effects of rest cannot be obtained singly; but they must be thought of singly and prescriptions of rest made with one or the other as the object to be desired, even though both will, in a measure, always be obtained.

Rest in the sense of diminution of movement obviously has a useful place in the therapy of tissues which are being strained and separated. In the presence of a fracture, immobilization of the parts is of urgent importance and in operative wounds healing depends upon decreasing movement of the opposed edges of the incision. Peptic ulcers need freedom from the stresses of hyperperistalsis; similarly, the effectiveness of pneumothorax in tuberculosis lies in the respite the tissues obtain from the continual eroding motion of respiration.

Rest in the sense of lowered metabolism also has a valuable place in therapy. It is employed in two situations. If an organ is diseased, the function or product of that organ becomes deficient and other organs and tissues are apt to suffer from that deficiency. In these cases rest of the remaining organs, and therefore frequently of the whole body, is prescribed in order that the need for the deficient function may be diminished and the body enabled to carry on until the diseased organ has recovered its full function. In cases of vomiting in which food cannot be taken into the intestine, rest is ordered so that less food will be needed. If the pancreas is deficient in the production of insulin, the intake of carbohydrate is lowered in order that the body will not be inundated with unutilizable glucose. In the patient whose heart functions inadequately activity is restricted to that which his heart can support.

Rest in the sense of lowered metabolism is also used when the processes of fatigue have exceeded those of regeneration. It is for this purpose that we sleep at night. After particular physical excesses we sleep more than usual. Since fatigue processes are cumulative, an organ which has been overtaxed should be allowed to recuperate by the application of proportionate rest. Thus, a restricted intake of carbohydrate in the diet benefits the patient whose pancreas has been overworked and harassed by the need for coping with an excessive intake of starches. Thus, too, rest benefits certain patients with cardiac disease who have failed to heed the warning signals which have been provided as an index of the fatigue state.

It is important to note that benefit from this application of rest will be obtained only if the pathologic state is due to inadequate rest. Rest is specific solely for the absence of rest, and we have no knowledge that it has any other merits than those already mentioned.

Rheumatic fever is a disease for which long periods of rest are usually prescribed. The patient is kept in bed for a month or six weeks after cessation of all clinical and laboratory evidence of rheumatic activity.[10] The period of complete bed rest may extend to a year or more. Even if rest is not credited with any positive virtue, it is claimed to be "less dangerous" than activity. The orthodox treatment being that of extreme rest, the onus is on the opponents of this management to show that it is not the best. None of the indications for the application of rest mentioned above is ordinarily found in rheumatic fever; but there appear to be two usual reasons for the application of rest in this condition. In the first place, it is said that early activity may maintain the flame of the rheumatic process or rekindle a quenched fire. Unfortunately, our concepts of rheumatic activity are governed too much by laboratory tests of the blood, particularly the white cell count and the sedimentation rate. Leukocytosis is certainly a sign of bodily defense and not of invasive disease. If we cannot say definitely that an elevated

sedimentation rate has the same significance, we do know at least that such an elevation is not always pathologic since it is normally found in pregnancy. The sedimentation rate also shows fluctuation during the normal menstrual cycle. Recently, it has been suspected of being normally elevated in some adolescent children.[11, 12] In any case, neither leukocytosis nor an elevated sedimentation rate indicates disease activity, but merely some bodily reaction to the disease. They may show that a disease has been present but not necessarily that it is still present. Evidence of repair may be seen long after the attack of disease is over. It seems unreasonable to await the disappearance of such evidence before activity is resumed. Yet, some patients[13] have been kept at rest for as long as two years merely because the sedimentation rate remained elevated.

If reactivation of the rheumatic process does occur after resumption of activity, we have no proof that it was due to this activity. Such reactivation can also happen during the phase of rest therapy. The rheumatic process is related to the occurrence of streptococcal infections. It has never been shown that these are precipitated by activity and indeed there is evidence that healthful activity decreases the incidence of upper respiratory infections. Even if this were not true, it is well to remember that such infections are precipitating rather than predisposing causes. In fact rheumatic flare-ups do not always occur following such infections, even in patients who have previously had rheumatic fever activity associated with them.[14] Therefore, since no one has ever shown that active children are more susceptible to rheumatic fever than inactive ones, it seems unreasonable to suppose that ambulatory patients with rheumatic fever will do less well than inactive ones.

A second argument of the proponents of rest implies that activity may damage the heart and provoke an episode of congestive failure. Physicians and laymen alike are horrified at the thought of imposing a strain upon the heart and shrink from allowing any activity which might contain this possibility. Harris[13] has expressed the prevailing opinion: "It need hardly be said that where any doubt exists as to the status of the patient, complete bed rest is advisable and should be continued."

It must be remembered, however, that the load produced by muscular exercise never falls directly on the heart, but immediately only on the muscles, tendons and bones. The strain on the heart is increased solely through increases in blood pressure and cardiac output. The heart has to do more work to supply the muscles if they are to continue their activities, but it does not itself participate in the tremendous direct mechanical strains which occasionally tear a muscle. Only in the rare cases of rupture of an aortic valve leaflet does the ventricular musculature itself become involved in a sudden severe strain. Such rupture, occurring early in diastole when aortic pressures are high, results in a sudden reflux of blood into a relaxed diastolic ventricle which, being diseased itself, frequently cannot accommodate itself to this condition and so dilates and fails. Ordinary dilatation on the other hand results from increased filling from the veins and not from increased pressure from the arteries. In exercise, dilatation of the heart is actually the exception rather than the rule;[15] when it does occur it is entirely physiologic and, after the exercise, subsides.

There is a widespread belief that excess work may gradually tax the heart and lead to eventual failure. It is recognized that in certain patients, congestive failure occurs when they are ambulatory, but not when they are at rest. This does not mean necessarily that the activity has weakened the heart, but merely that inadequacy of the heart has been shown by a strain on it. The studies of Merrill[16] have shown that in congestive failure renal blood flow is reduced although the ability of the kidneys to excrete salt is not qualitatively disturbed. The renal blood flow in his patients was reduced to about one-fifth normal when cardiac output was reduced only to about half normal. The reduction in renal blood flow had no relation to the venous pressure, but was correlated with the reduction in cardiac output. These results suggest that congestive failure occurs when the renal excretion of salt is reduced by diminished renal blood flow because of diminished cardiac output. In ambulation, blood is presumably diverted from the kidneys to the somatic muscles and so congestion naturally would occur earlier without any necessary concomitant diminution in cardiac output. The total quantity and quality of the product delivered by the heart may remain unaltered, but

changes in its distribution be disastrous to the body.

This plausible explanation of the mechanism of congestive heart failure during exertion does not dispose of the possibility of damage to the heart by prolonged strain. It is necessary to consider other arguments. If heavy work or exercise can damage a heart, it is strange that chronic heart disease is almost unknown in horses which are by far the most overworked and strained of all animals. In patients with coarctation of the aorta it is common to find systolic blood pressures which at rest range from 200 mm./Hg. to 250 mm./Hg. and in activity rise much higher. Such pressures persist from birth and these patients go on in this manner frequently for forty to sixty years or more without evidence of failure. It is quite plausible to suggest that the processes of depletion and fatigue which culminate in heart failure are in some degree cumulative, but it is not reasonable to argue that they operate in these patients over such a lengthy period. It is much more probable that when failure comes to patients with coarctation, it does so as a result of recent changes in the quality of the cardiac musculature which are merely accentuated by the increased pressure.[17]

These arguments may be further elaborated by a consideration of the circumstances under which cardiac hypertrophy occurs. The rules governing hypertrophy of somatic muscle must surely also be applicable to the heart. Hypertrophy in any organ is the response of that organ to a load greater than that which it can already handle. This may occur if the load is excessive as when the work of the heart is increased by athletics of the endurance type such as marathon running or long distance cycling. Under these circumstances an increased burden is placed upon the heart and hypertrophy is a natural response to the new situation; it is different in location but not in mechanism to the somatic muscular hypertrophy which occurs in weight lifters and other athletes who participate in sports of what may be described as the strength-testing type. These extremes of athletic types are rather rare and in most persons who exhibit muscular hypertrophy the burden is distributed upon both somatic muscles and the heart. There is, therefore, as Hirsch showed in cadavers, a correlation between heart weight and somatic musculature.[18] This observation was actually preceded by that of William Harvey,[19] who noted in "De Motu Cordis" in 1628 that "all animals—and among men it is not otherwise—that are endowed with particularly strong frames, and that have large and fleshy limbs at a great distance from the heart, have this central organ of greater thickness, strength and muscularity. And this is both obvious and necessary. Those, on the contrary, that are of softer and more slender make have the heart more flaccid, softer, and internally either sparely or not at all fibrous." Hypertrophy is not a pathologic change and we have no justification for thinking that it is ever a morbid process although it may often be a response to one.

Most cardiac hypertrophies, however, are not due to an excess load such as occurs in the endurance athlete. It is true that in many cases of hypertrophy the heart carries an added load as it does in hypertension. But if that extra load were the cause of the hypertrophy we would expect the latter always to be associated and correlated with the former. Such is not the case. It is not true in coarctation of the aorta. It is not true in many cases of mitral stenosis in which there is almost as much hypertrophy of the left ventricle as of the right. It has recently been shown to be untrue in cases of Bright's Disease. In patients with chronic nephritis and associated hypertension the degree of cardiac enlargement has borne no relation whatever to the duration or extent of the hypertension.[20] The heart responds with hypertrophy when it is unable to handle the load placed upon it. This inability may arise from an increase in the load or from a decrease in the ability of the heart to handle a normal load. Loads much greater than normal can be handled by healthy hearts without hypertrophy, but a diseased heart may be unable to handle its load without hypertrophy. The evidence cited above, however, indicates that the extent of the load and activity of the patient are negligible factors in the production of the hypertrophy.

Some physicians feel that exercise to the point of dyspnea and fatigue is definitely harmful. The body, however, has been carefully adjusted so that within reasonable limits the need for increased oxygen can be met by increased pulmonary ventilation. A person who is dyspneic when exercising is not necessarily incurring an oxygen debt which he cannot liquidate. His metabolism is increased and he is

using more oxygen than normally, but there is no oxygen deficiency which cannot be corrected, and he is not exercising beyond the compensatory ability of his body. The degree of temporary insolvency will naturally vary between the well trained endurance athlete and the cardiac cripple, but the latter will eventually recover from the effects of his exercise as much as will the former.

If these arguments are accepted, we may establish different criteria for the management of rheumatic fever. The present author would allow all patients with this condition to get up when they wish to do so and for as long as they can comfortably do so. Obviously no patient would get up from the acute phase until his articular pains had subsided and he had recovered from his original febrile malaise. If he then wished to get up, he would be encouraged to do so. He would then be allowed to do a little more each day. He would gain strength gradually, and would receive the psychologic benefits of renewed activity and its accompanying sense of well-being. The two symptoms by which his activity would be regulated are dyspnea and fatigue, and with a little instruction the patient can be taught how to use these symptoms in the gradual increase of his exercise. If he exercises to the point at which either of these begins to be uncomfortable, he has done himself no harm, but, on the contrary, much good. Laboratory data would be ignored, except as they warn us of the probable reserve of the heart and thereby enable us to give better advice to the patient about his initial exercise. No patient would be evicted from his bed except in the presence of wilful sloth, but since the present treatment of this and most other conditions in which bed rest is prescribed, involves restraining the desire to get up, this situation would rarely occur. In general, we would do well to revert to the advice of the great seventeenth century English physician, Sydenham, who said, "More attention is to be attached to the desires and feelings of the patient, provided they are not excessive or dangerous, than to doubtful and fallacious rules of medical art."

Recently, reports have been made of two series of cases in which early activity has been resumed. In the series of Robertson and his associates[21] no ill effects from the early ambulation were observed and the clinical and laboratory criteria of activity decreased during the period of increasing exercise. Furthermore, cardiac neuroses, which are remarkably common and largely iatrogenic in bed-ridden patients, were completely absent in their series. Karpovich and his associates[22] reduced the delay in beginning physical activity from the average of 77.3 days after the cessation of symptoms to an average of 16.2 days; they noted no increase in cardiac damage over a period of six to twelve months.

If early activity is not harmful in rheumatic fever, it may be that inactivity is. It has already been pointed out that the heart participates no less than the somatic muscles in the general atrophy which accompanies decreased use. This might not itself be dangerous, or permanent, any more than disuse atrophy is irreversible in somatic muscle. However, there is a particular reason for avoiding disuse in the heart of rheumatic fever.

After the acute phase of rheumatic fever, the principal pathologic process which harms the heart is the formation of fibrous tissue which shrinks the valves and strangles the cardiac muscle. Chronic rheumatic heart disease is the war of the patient against the gradual encroachments and contractures of scar tissue. Fibrous tissue, however, is by no means as irrevocable as we once thought it to be. Under certain circumstances it has been known to disappear completely. In the liver, fibrous tissue produced in carbon tetrachloride cirrhosis has been found to regress;[23] the sclerosis of a uterine blood vessel has been removed by pregnancy[24] and in fact the latter condition is almost a specific for gonococcal adhesions of the pelvis. These literally melt away before the advance of the increased blood supply which pregnancy brings to the pelvis. Gillman and Gillman[24] have noted that fibrous rheumatic nodules and fibrous bands around rheumatic joints disappear rapidly under certain circumstances. Despite these advances we still have no clear idea of all the conditions which regulate the amount of fibrous tissue in organs. However, it is known to occur in general where the blood supply is inadequate or absent. It is the penultimate chapter in the body's response to anoxia and, short of death, it is the extreme manifestation of disuse. As such, it is particularly prominent in the advanced stages of the disuse muscular atrophy found so often in orthopedic cases. One means of preventing and removing scar tissue seems to be the improvement of the blood supply to the

organ involved. Yet when we rest the heart we reduce its blood supply, which is apparently proportional to cardiac output,[25] and thereby we promote the formation of scar tissue which is later to prove so dangerous to the patient. It has been argued that there is no such thing as resting the heart since it is always beating. But the normal resting rate of about 70 beats a minute is to the heart only what normal tone is to resting muscle, and does not represent normal activity. Resting the heart unnecessarily is not different from denying movement to a fractured limb, and is fraught with as much danger as applying braces to a leg paralyzed by poliomyelitis. The heart can be as effectively splinted as the leg.

It is possible to include much of the preceding discussion in a generalization which has long been familiar to biologists, but which is as yet unrecognized in clinical medicine: structures adapt themselves to the functions which they are called upon to perform. A common and easily studied illustration of this law is the change which occurs in the trabeculations of the femur when different strains are thrown upon this bone. This principle is everywhere manifested in the works of nature,[26] but, unfortunately, clinical medicine does not yet recognize the delicate interplay of form and function, although these relationships have been widely taught by biologists since the time of Lamarck.

This principle is not only of academic interest but seems to contain within it the germ of a better practice of medicine. For if disordered function may lead to distortions of form, may not return of normal function lead to the restoration of the original form? This idea has been used unconsciously by orthopedists in the treatment of disuse atrophy for many years. It lies at the root of Sister Kenny's Treatment of infantile paralysis and it has been applied to diseases of the eye[27] and other conditions[28] with noteworthy success. Every effort should be made to restore each diseased organ to its natural function not only because this is desirable in the end, but because it is therapeutically valuable. Plato was not a physician but his wisdom may well be noted by physicians. In the fourth book of *The Republic*, he wrote "Now to produce health is to put the various parts of the body in their natural relations of authority or subservience to one another, while to produce disease is to disturb this natural relation."

BIBLIOGRAPHY

1. Cuthbertson, D. P.: The influence of Prolonged Muscular Rest on the Metabolism. Biochem. J., 1929 XXIII, 1328.

1a. Deitrick, J. E., Whedon, G. D., and Shorr, E.: Effects of Immobilization upon Various Metabolic and Physiologic Functions of Normal Men. Am. J. Med., 1948, IV. 3.

2. Allison, N., and Brooks, B.: Bone Atrophy. Studies of Changes in Bone with Disuse. Arch. Surg., 1922, V, 499.

3 Albright, F., Burnett, C. H., Cope, Oliver and Parson, W.: Acute Atrophy of Bone (osteoporosis) Simulating Hyperparathyroidism. J. Clin. Endocrinol., 1941, I, 711.

4. Harding, A. E. Beryl: An Investigation into the Cause of Arthritis Muscular Atrophy. Lancet, 1946, I, 433.

5. Young, J. A.: Effects of Use and Disuse on Nerve and Muscle. Lancet. 1946, II, 109.

6. Lipschutz, A., and Audova, A.: The Comparative Atrophy of the Skeletal Muscle After Cutting the Nerve and After Cutting the Tendon. J. Physiol., 1921, LV, 300.

7. Hines, H. M.: Effects of Immobilization and Activity on Neuromuscular Regeneration. J.A.M.A., 1942, CXX, 515.

8 Hines, H. M., Thomson, J. D., and Lazere, B.: Physiologic Basis for Treatment of Paralyzed Muscle. Arch. Phys. Ther., 1943, XXIV, 69.

9. Solandt, D. Y.: Atrophy in Skeletal Muscle. J.A.M.A., 1942 CXX, 511.

10 Coburn, A. F.: Management of Navy Personnel with Rheumatic Fever. U. S. Naval Med. Bull., 1943, XLI, 1324.

11. Benson, L. and Rogers, E. J.: The Blood Sedimentation Rate in Healthy Girls. J. Lab. and Clin. Med., 1941, XXVI, 987.

12. Osgood, E. E., Baker, R. L., Brownlee, I. E., Osgood, M. W., Ellis, D. M. and Cohen, W.: Total, Differential, and Absolute Leucocyte Counts and Sedimentation Rates of Healthy Adolescents Fifteen to Eighteen Years of Age. J. Lab. & Clin. Med. 1939, XXIV, 9905.

13. Harris, T. N.: The Erythrocyte Sedimentation Rate in Rheumatic Fever. Am. J. Med. Sci., 1945, CCX, 173.

14 Hill, Donald F. and Holbrook, W. P.: The Role of Climate in the Treatment of Rheumatic Disease. Clinics, 1942, I, 577.

15. Schneider, E. C.: Physiology of Muscular Activity. Philadelphia, W. B. Saunders Company, 1939.

16. Merrill, A. J.: Edema and Decreased Renal Blood Flow in Patients with Chronic Congestive Heart Failure: Evidence of "Forward Failure" as the Primary Cause of Edema. J. Clin. Invest., 1946, XXV, 389.

17. Lewis, Sir Thomas: Diseases of the Heart. ed. 3, London. Macmillan and Company, 1943.

18. Hirsch, C.: Quoted by Steinhaus, Arthur H.: Chronic Effects of Exercise. Physiol. Rev., 1933, XIII, 103.

19. Harvey, William: An Anatomical Disquisition upon the Movement of the Heart and Blood in Animals, 1628, Translated from the Latin by Robert Willis, London: J. M. Dent and Sons, 1907.

20. Dean, J. V. B.: Relation of Cardiac Enlargement to Hypertension in Acute and Chronic Glomerulonephritis. Am. J. Med., 1946, I, 161.

21. Robertson, R. F., Schmidt, K. E. and Feiring, W.: The Therapeutic Value of Early Physical Activity in Rheumatic Fever. Preliminary Report. Am. J. Med. Sci., 1946, CCXI, 67.

22. Karpovich, P. V., Starr, M P., Kimbro, R. W., Stoll, C. G. and Weiss, R. A: Physical Reconditioning after Rheumatic Fever. J.A.M.A., 1946, CXXX, 1198.

23. Cameron, G. R. and Karunaratune, W. A. E.: Carbon Tetrachloride Cirrhosis in Relation to Liver Regeneration. J. Path. & Bact., 1936. XLII, 1.

24. Gillman, Theodore and Gillman, J.: The Value of Speranksy's Method of Spinal Pumping in the Treatment of Rheumatic Fever and Rheumatoid Arthritis. Am. J. Med. Sci., 1946. CCXI. 448.

25. Anrep, G. V. and Segall, H. N.: The Regulation of the Coronary Circulation, Heart, 1926. XIII, 239.

26. Thompson, D'Arcy W.: Growth and Form. ed. 1. Cambridge University Press, 1917.

27. Huxley, Aldous: The Art of Seeing. New York. Harper & Bros., 1942.

28. Alexander, F. M.: The Use of the Self. E. P. Dutton & Co., New York, 1932.

POSTSPINAL PUNCTURE HEADACHE

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QUINCKE was given credit for the introduction of spinal puncture when in 1891 he reported its use to relieve symptoms of hydrocephalus. Since that time its field of usefulness has been greatly extended and today is a very common procedure. It is used, for example, for such diagnostic purposes as determining the presence of syphilis, meningitis, spinal cord tumors, and herniated intervertebral disks. Spinal puncture is used to induce spinal anesthesia and to introduce chemicals and biologicals into the subarachnoid space in the treatment of various cerebrospinal diseases. Spinal puncture is not, however, without undesirable reactions.

Postspinal Puncture Complications

The untoward effects from spinal puncture in the properly selected case are largely confined to the so-called postspinal headache syndrome. However, a rare death does occur. Weider[30] reports one death in 13,000 spinal punctures. Other complications may occur as injury to an intervertebral disk[11, 21, 24] and periosteal injury to a vertebrae.

The postspinal headache syndrome is manifested by onset of symptoms sometimes immediately, or, as is most usual, several hours after the puncture, and characteristically is improved by recumbency and aggravated by activity. The syndrome has been reported to occur after spinal puncture from below 1%[19] to 56%.[26] There is headache of various types such as frontal, occipital, general, bitemporal, fronto-occipital and more rarely, vertex. The headache may be complicated with nausea, vomiting, dizziness, fullness and pain in the ears, neck pain and backache in the dorsal and lumbar regions. Other symptoms which may occur alone or in combination with postspinal headache, and, in this series almost entirely with headache, are pain and weakness in the legs, pain in the hips, pain in the testicles. Pain at the site of puncture may occur, but was not too common a complaint in this series.

Etiology of Postpuncture Headache

Several theories have been advanced to explain the mechanism of the postpuncture headache but there are contradictory facts which make further studies necessary to explain the mechanism of postpuncture headache and its successful prevention. While the theories of meningeal irritation and leakage at the present time are the most important, Adler[1] concludes that the cause of the headache is increased intracranial hypertension due to reaction of the choroid plexus caused by emotion.

The theory of aseptic meningitis and meningeal irritation[15, 9] are mentioned as possibly explaining some postpuncture headaches.

The theory of leakage of spinal fluid through the dural puncture hole into the epidural space as the primary etiological factor has been described by various investigators.[28, 5, 26, 14] A marked fall in spinal fluid pressure in patients developing postpuncture headaches has been found by Jacobaeus and Frumerie,[16] Alpers,[3] and Nelson.[22] The headache is said to be due to loss of the water cushion supporting the brain, with subsequent basiler venous congestion, and increased pressure and traction on the nerves and vascular structures.[20, 7, 18] Nelson[22] developed a method of plugging the puncture hole with cat gut to prevent postspinal puncture headache, and, in a control series, 4.9% of the cat gut series as compared to 17.4% of those punctured in the routine manner developed reactions. The use of a small needle to diminish drainage has been advocated.[3, 8, 22, 6] Dattner[8] devised a special needle, and reported a lower incidence of reactions. Allen,[2] using the Dattner needle, reported two incapacitating headaches and 16 mild headaches in 116 punctures.

Because of reports such as those by Danna,[7] Pappenheim,[23] Davenport,[10] and, more recently, by Adler,[1] Blau,[6] and Levin,[19] the leakage theory has been questioned, and more emphasis has been placed on emotional and psychological factors. The use of sodium amytal for the prevention of headaches by Kulcher and King,[17] and Schube and LeDrew,[27] lent some credence to the major role that emotional factors play in causation of headaches. In the experiences herein reported seconal given before spinal puncture resulted in no reduction of reactions. The recent excellent report of Redlich, Moore and Kimbell[25] concluded that "drainage is the most significant factor in the production of symptoms following lumbar puncture outweighing by far the

small contribution of anxiety, hypochondriasis and other emotional elements."

Classification of Headache

In this series the headaches were classed as mild, moderate, or severe. A headache was considered mild that did not incapacitate the patient for more than 48 hours, although many in this group had symptoms that lasted from one-half day to six or seven days but were not incapacitated. Many of the mild cases had complicating symptoms such as nausea and vomiting, pain in the neck, and back, etc. A moderately severe headache was one which incapacitated the patient for three days. The patient was considered to have a severe headache if he was incapacitated for four days or longer. Symptoms of nausea and vomiting, neck pain, etc., were more common with the moderate and severe headaches.

Clinical Observations

The material studied in this report consisted of 1658 spinal punctures, 1158 for diagnostic purposes, and 500 to induce spinal anesthesia. There were 1011 whites and 647 colored. For all practical purposes the age group was from 18 years to 40 years.

Group I. *Diagnostic Spinal Puncture:* An order permitting induction into the armed forces of men with syphilis, providing they did not have neurologic or visceral involvement, has made it possible to report the observations on post-spinal puncture reactions on 1158 diagnostic punctures of the 1658 reported in this paper.

All of the draftees were admitted to the hospital on the surgical service, and within one or two hours after admission had their spinal puncture. In all the groups here presented three grains of seconal were given about 45 minutes to one hour before the puncture was made. The punctures were made with the patients lying on either the left or right side depending upon the location of the head of the bed in the wards, except for those that were done in the sitting position. All of the punctures were made with a 20 gauge short beveled spinal needle. There were approximately 40 beds in one ward and 20 in the other where the punctures were routinely made. They were readied for puncture and the operators moved from one patient to the next as soon as the puncture was made. Eleven c.c. of spinal fluid was collected from each case, five c.c. in one tube and six c.c. in a second tube.

* Percentages throughout are usually expressed to the nearest whole number.

Postspinal puncture care varied with different groups of patients. One group was kept flat in bed for 24 hours, except for bath room privileges. At the end of this period they were encouraged to be active and were not permitted to lie in bed. The second group were gotten out of bed in four to six hours or sooner, if possible. Since they all received three grains of seconal before the spinal puncture was made, most of them slept for four to six hours. They were not permitted to return to bed after they were once up, until bedtime.

The patients were discharged from the hospital 48 hours after the puncture was made unless they had a postspinal headache severe enough to require bed rest, in which case they were discharged when they were sufficiently well to go home. Upon leaving the hospital each patient was interrogated as to how he felt and appropriate notes made. The patient was given a simple form to complete and return regardless of whether he developed symptoms or not. It requested simple but detailed information regarding his symptoms.

It is probably pertinent to report that practically all of these individuals were working in defense plants of one kind or another and were earning an excellent income. A large number of them objected to being kept from their jobs for two days.

The development of postspinal headache was quite high in the four groups studied. There were many reactions that would not have been recorded if a detailed follow-up system had not been used and only those who were severely incapacitated were reported. For instance, those with mild reactions could have been missed in spite of the fact that this group had a fairly high percentage of symptoms complicating the headache such as nausea and vomiting, neck and back pain. For example, of the group that was up in four to six hours after puncture, 39% had complicating symptoms.

The following is a breakdown of the untoward reactions of the different groups who had diagnostic punctures:

A. Spinal puncture done with the patient lying on his side and up in 24 hours. There were 621 cases of which 200 developed headache, an incidence of 32%*: 46% were mild, 22% moderate, and 32% severe.

B. Spinal puncture done with the patient in the sitting position and up in 24 hours. There were 52 cases with a reaction rate of 53% or 28 who developed headaches; 43% were mild, 10% moderate and 47% severe.

C. Spinal puncture done with patient lying on his side and up in four to six hours. There were 456 cases of which 214 developed headache, a reaction rate of 47% 50% had mild reactions, 14% were moderate and 36% were severe.

D. Spinal puncture done with the patient in the sitting position and up in four to six hours. There were 29 cases with 39% reactions or 11 who developed headache; 36% had mild reactions, 27% moderate and 56% severe reactions.

Positive spinal fluids (Kolmer) were found 59 times or in 5% of the 1158 diagnostic punctures. Postpuncture reactions occurred in 45.8%. Mild headache occurred in 43% while 10% were moderate and 47% severe.

Bloody spinal fluid taps occurred 25 times, an incidence of 1.4%. Postpuncture reactions were present in 56% of these cases. There were 7 mild reactions, and 7 reactions that were moderate or severe.

Group II. *Spinal Puncture for Anesthesia.* The remaining 500 cases of the 1658 reported in this paper were spinal punctures done to induce spinal anesthesia for general surgical procedures consisting largely of abdominal and rectal surgery.

These spinal punctures were made with a 20 gauge short beveled spinal needle with the patient lying on either the left or right side. The anesthetic agent used was novocain, a mixture of novocain and pontocain, and a mixture of novocain and nupercain. Preoperative medication consisted of three grains of seconal and morphine grs. ⅛ to ¼ with atropine grs. 1/150. Ephedrine sulphate ⅜ grains was given at the time the spinal anesthesia was induced. The average amount of spinal fluid withdrawn was about 3 c.c. to mix the anesthetic agent, but this amount of fluid was replaced. Postoperatively the abdominal cases were put up in Fowler position as soon as the spinal anesthetic had worn off. It was therefore usually not more than two and a half to three hours after the spinal puncture had been made until the patients were up in Fowler Position, and were so kept during the major part of their convalescence. The abdominal cases were kept in bed for from 7 to 18 days. The postoperative care of rectal cases differed from those who had abdominal surgery in that they were not routinely put up in Fowler position, could be out of bed when they desired, and were always up and about the day following operation.

All of the operative cases, as in the diagnostic spinal group, were questioned regarding headache. They were followed more closely personally because they were hospitalized until they could be returned to full duty.

In the 500 surgical cases postspinal puncture headache occurred only 35 times or an incidence of 7%. There were 355 abdominal and 155 rectal cases. In the abdominal group reaction occurred 19 times and in the rectal group 16 times. There were 16 cases recorded as mild, 9 moderately severe, and 10 severe; in other words, 45% were mild, 25% moderate, and 28% severe.

It is of interest that the incidence of headache was about twice as great in the rectal cases. The severity of the headache was essentially the same in both groups except that the duration of severe headache was one day less in those who had rectal surgery. One wonders what the effect of remaining in a semi-sitting position had on the lower incidence of headache in the abdominal group.

The average time of onset of the headache was 26 hours. In this series the longest time of onset was 9 days; the severity was moderate. This patient had on a previous occasion developed a headache on the 9th day following a spinal anesthesia. The average duration of cases with severe symptoms was 6 days, and the longest was 21 days. Frontal headache, with its various complications such as neck ache, nausea and vomiting, occurred in 85% of the cases. Dizziness of shorter or longer duration occurred in 13 cases, and was of the subjective type. The patient spun around objects, and oddly enough, always spun clockwise.

COMMENT

There is sufficient evidence[7, 1, 12, 6, 10] that no harm is done by immediate ambulation following puncture and certainly, in some series reported, the incidence of headache is reported as markedly reduced. Therefore it would seem there is no contraindication to activity immediately following spinal puncture. Levin[10] stated that

the low incidence of reactions in his cases (less than 1%) "is believed to be due to the more nearly normal intracranial pressure maintained by the erect position, thus preventing over-secretion and compensatory hypertension with resultant headache."

The use of a prespinal sedative did not, in the series reported here, reduce the incidence of headache. This same observation was also made by Underwood.[20]

It appears that position[20] and the rapidity with which the fluid is withdrawn[19] has no effect on the incidence of headache. Raney and Raney[25] state the incidence of headache is lower when the puncture is done in the sitting position. The observations in this paper were too few to warrant conclusions.

Nelson[22] pointed out that there did not appear to be any relation between spinal fluid pressure at the commencement of withdrawal of spinal fluid, and after the fluid had been withdrawn; and the incidence of headache. However, "In all these patients the pressure was found to be remarkably low during the headache, indicating a great reduction in the volume of spinal fluid in the spinal subarachnoid space."

The frequency of postpuncture reactions in those with positive spinal fluids, 45.8% in this series, did not bear out completely the statement of Davenport[10] " . . . that postpuncture headache was 95% assurance that the spinal fluid was negative or cerebrospinal involvement was of mild degree."

There was a total of 488 postpuncture reactions, an overall incidence of 29%. Moderate and severe headaches were present in 257; mild headache occurred 231 times. Frontal headache was about twice as frequent as any of the others recorded—occurring 241 times or 49% of the total. Generalized headache occurred in 23%, occipital 21%, fronto-occipital in 4%, and bitemporal in 3%.

The average time of onset of symptoms was 22.4 hours. The duration of symptoms in the severe group averaged 6.05 days. The longest duration of symptoms was 21 days.

While about 15% of the moderate and severe group of headaches did not have complicating symptoms such as nausea, vomiting, etc., an overall of 45% had no complicating symptoms.

The incidence of postpuncture headache was about 12% higher in the colored than in the white group. Of the 488 cases of headache 214 or 43.8% were in the white group, and 274 or 56.2% in the colored.

It is difficult to reconcile the much lower incidence of postpuncture headache in the operative, as compared with the diagnostic group that was punctured lying down, and was up and active in four to six hours after the puncture. It is difficult because this group in some respects was comparable to the operative cases, that is, shortly after the puncture they were in the erect position and remained so except at bedtime. It is true that 11 c.c. of spinal fluid was removed from the diagnostic group and not replaced, while only 3 or 4 c.c. was temporarily removed from the operative group. However, this should have made no difference since Levin[19] removed 10 c.c. of spinal fluid, and had an incidence of less than 1% reactions.

Certainly the percentage of reactions under

Total Cases Punctured
1658

White	Colored
1011	647

Total Reactions
488 or 29%

White	Colored
214--44%	274--56%

Severity of Reactions

Mild	Moderate & Severe
231--47%	257--53%

Types of Headache

Frontal	241	49%
General	110	23%
Occipital	104	21%
Fronto-occipital	20	4%
Bitemporal	13	3%

Positive Spinal Fluids
59 or 5%

White	Colored
35	24

Bloody Spinal Taps
25 or 1.4%

Average Time Onset of Symptoms
22.4 hours

Reactions

White	Colored
13	24

Reactions

Mild	Moderate & Severe
7	7

Average Duration Severe Symptoms
6.05 days

certain comparable conditions does not always prevail with different observers. For example, the use of a sedative given before spinal puncture in the diagnostic group reported in this paper did not result in a low incidence of reactions. Except for the operative group a limitation of psychic factors with sedatives and early erect position resulted in no reduction in the number of reactions. It would appear after a study of this report and others that the incidence of postpuncture symptoms is not predictable on a physical basis or on a psychological basis, except, as Redlich[26] concluded "knowledge of ill effects in others does increase postlumbar puncture sequelae to a statistically significant degree."

If the desire for monetary gain was as strong as suggested by the number of draftees who complained about losing money because of their 48-hour sojourn in the hospital for the spinal puncture, one would not suspect that on psychological grounds there would have been such a high rate of reactions in this group; certainly the compelling force was not rest for nothing but work for money.

TREATMENT

The various treatments used were 50 c.c. of 50% glucose by vein—this seemed to give temporary relief to some, while 1000 c.c. of 5% glucose in saline given in about one hour gave some temporary relief to others. Pituitrin by intramuscular injection in this experience gave the least satisfactory results of all. Caffiene Sodium-Benzoate occasionally seemed to help some. Nicotinic acid produced its fleeting moment of hope—gynergen was also tried.

Of course most of the patients preferred to be flat in bed because of the relief it gave. However, the impression was gained that those severe cases who co-operated were relieved sooner when given 5% glucose in saline intravenously, and when they were put up in Fowler position, and kept there day and night. The 5% glucose was given if necessary three or four times in 24 hours in some cases.

Sedatives were helpful in the severe cases because they did afford some rest. Aspirin and codeine were helpful at times.

Treatment of postspinal headache was not too encouraging. One's enthusiasm in the treatment being carried out at the moment temporarily helped both the doctor and the patient, but time seemed to be the surest cure.

SUMMARY AND CONCLUSIONS

1. The etiology of postspinal puncture headache is not entirely clear; the "leakage" theory is at present the most widely accepted etiological factor plus a psychological factor that apparently increases postlumbar puncture sequelae.

2. There was an overall incidence of 29% postspinal puncture headache in 1658 spinal punctures. However, only 7% of 500 cases of spinal puncture done for inducing spinal anesthesia developed headache.

3. Prespinal puncture sedation with 3 grains of seconal did not result in a low incidence of postpuncture headache in 1158 diagnostic punctures. In this same group there was no appreciable difference in the incidence of headache in those who were active soon after puncture and those who were kept recumbent for 24 hours.

4. Treatment of postlumbar puncture headache is symptomatic.

BIBLIOGRAPHY

1. Adler, H.: Study of Headaches Following Diagnostic Taps. New York State Med. J. 43:328. 1943.

2. Allen, H. W.: Headache Following Lumbar Puncture, Brit. M. J. 2:349 (Aug. 25) 1934.

3. Alpers, B. J.: Lumbar Puncture Headache. Arch. Neurol. and Psychiat 14:806, 1925.

4. Ayer, J. P.: Cerebrospinal Fluid Pressure from the Clinical Point of View, Arch. Neurol. and Psychiat. 14:440. 1925.

5. Baruch, H.: Zur Ursache Unangen Ebmer Nebernerscheinungen der Lumbaranasthesie Sugleich Ein Bitrag zur Funktionsprutung des Liquor Systems, Berl. Klin. Wchnschr. 57:298, 1920.

6. Blau, A.: Reactions Following Puncture, Urol. & Cutan. Rev. 45:239, 1944.

7. Danna, C. L.: Puncture Headache, J.A.M.A. 68:1017, 1917.

8. Dattner, B.: Moderne Therapie der Neuro Syphilis. Mit Einschluss der Punktion-Stechnik and Liquor-Untersuchung, Wein, Wilhelm Maudrich, 1933.

9. Dattner, B., and Thomas, E. W.: Bilateral Abducens Palsy Following Lumbar Puncture, N. Y. State J. Med. 41:1660. 1941.

10. Davenport, K. M.: Postpuncture Reactions, New York State J. Med. 39:1185, 1939.

11. Downing, F. Harold, Commander (M.C. U.S.N.R.): Collapse of Intervertebral Disk Following Soinal Puncture. Report of Two Cases, U. S. Nav. M. Bull. 43:666-673, (Oct.) 1944.

12. Green, H M.: Lumbar Puncture and the Prevention of Postpuncture Headache, The J.A.M.A. 86:391, (Feb. 6) 1926.

13. Heldt, T. J. and Mohoney, J. C.: Negative Pressure in Epidural Space, Am. J. M. Sci. 175:371. 1928

14. Heldt, T. J. and Whitehead, L. S.: Clinical Studies in Pastlumbar Puncture Headache. Am J. Psychiat. 93:619, 1936.

15. Hurxthal, L. M.: Sterile Meningitis Following Lumbar Puncture, J.A.M.A. 100:1469, 1933

16. Jacobaeus, H. C. and Frumerie, K.: About the Leakage of Spinal Fluid After Lumbar Puncture and Its Treatment, Acta. Med. Scandinau., 58:102, 1923.

17. Kulcher, G. V. and King, A. P.: Use of Sodium Amytal in Prevention of Reactions Associated with Lumbar Puncture. Arch. Neurol. and Psychiat. 30:170, 1933.

18. Kunkle, E. C., Ray, R. S., and Wolff, A. G.: Experimental Studies on Headache. Archives Neurol. and Psychiat. 49:733, 1943.

19. Levin, M. J.: Lumbar Puncture Headaches, Bull. U. S. Army Med. Dept. 82:104, 1944.

20. McRobert, R. G.: The Cause of Lumbar Puncture Headache, J.A.M.A. 70:1350, 1918.

21. Milward, F. J., Grout, J. L. A.: Changes in the Intervertebral Disks Following Lumber Puncture, Lancet 2:183-185, 1936.

22. Nelson, M. O.: Postpuncture Headaches: Clinical and Experimental Study of Cause and Prevention, Arch. Dermatology and Syph. 21:615, 1930.

23. Pappenheim, M.: Die Lumbal Punktion. Wien: Ricola, Verlag, 1922.

24. Pease, C. N.: Injuries to the Vertebrae and Intervertebral Disks Following Lumbar Puncture, Am. J. Dis. Child 49:849-860, 1935.

25. Raney, Aidan and Raney, Rupert B.: Postspinal Headache. Etiology and Prophylaxis, Western J. of Surg., Obst. and Gyn. 55:550 (Oct.) 1947.

26. Redlich, F. C., Moore, F. E., Kimbell, I. Jr.: Lumbar Puncture Reactions: Relative Importance of Physiological and Psychological Factors, Psychosomatic Medicine Vol. VIII, No 6:386-398, (Nov., Dec.) 1946.

27. Schube, P. G. and LeDrew, F.: The Prevention of Reactions Due to Lumbar Spinal Puncture, New England J. Med. 211:537, 1934.

28. Sicard, J. A.: Le Liquide Cephalo-Rachidien, Paris: Masson et Cie, 1902.

29. Underwood, L. J.: Lumber Puncture Headache, Am. J. of Syphilis, Gonorrhea and Venereal Diseases, Vol. 30, No. 3:264-271, (May) 1946.

30. Weider, L. M.: A Study of Ill Effects from Lumbar Puncture with Report of a Postpuncture Fatality, Am. J. M. Sc 173:854-860, 1927.

SURGICAL TREATMENT OF PULMONARY COCCIDIOIDOMYCOSIS
(Local Excision of Small Lesions)

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INTRODUCTION

THE application of pulmonary resection for coccidioidomycosis has not received a great deal of attention in the literature. The scarcity of reports in regards to surgery for this fungus disease is for the reason that such surgery is limited by the nature of the disease. In ordinary cases conservative therapy usually results in satisfactory control of this disease. There are a group of cases, however, where surgery is definitely indicated. Drs. S. J. Greer, J. H. Forsee, and H. W. Mahon[1] of Fitzsimons General Hospital, Denver, recently reported the following indications for pulmonary resection in coccidioidomycosis:

1. Recurrent moderate hemoptysis.
2. Failure of closure of cavity after many months' observation.
3. Spontaneous pneumothorax, with failure of the lung to re-expand.
4. To exclude neoplastic disease.

In their series of fifteen cases, nine were treated by lobectomy and six by wedge-shaped excision of the lesion.

The following two cases illustrate Indications No. 1, No. 2 and No. 4 of the above enumerated indications for pulmonary resection in this disease.

Case No. 1 was a 34-year-old white male with a cavity in the right upper lung field that had persisted for many months. During that time the patient had experienced a total of thirty-five small pulmonary hemorrhages. At operation the cavity was found to lie posteriorly in the peripheral portion of the upper lobe, and it was excised without difficulty. His postoperative course was uneventful. The lung re-expanded promptly.

Case No. 2 was a 38-year-old white female with a small nodular lesion lying at the periphery of the left upper lobe. A neoplasm was considered a possibility and exploratory thoracotomy recommended.

At operation the lesion was found to lie at the extreme periphery of the left upper lobe. It was excised in order to determine the nature of the lesion before proceeding further. The frozen section was reported as a benign inflammatory type of lesion, and the operation was therefore concluded at this point. Her postoperative course was uneventful. The lung re-expanded promptly.

The pathologist reported both of these pulmonary lesions as coccidioidomycosis.

In both of the aforementioned cases the skin test for coccidioidomycosis was negative. Both of these patients received two separate skin tests, and both were reported negative. Unfortunately the strength of each skin test dose was only 1-1000. This is now recognized as an error in technique. Dr. Chas. Smith[2] has this to say about skin testing for coccidioidomycosis:

> "With coccidioidal cavities in particular, it is occasionally necessary to go up to 1-10 coccidioidin. It should be read at 24 and 48 hours. Watch carefully for induration with only faint pinkness which is readily missed."

DISCUSSION

The above two cases represent local excision of a small coccidioidal lesion. It should be emphasized that the local excision is dependent upon two facts. The lesion must be small and must be located peripherally. If these two criteria cannot be satisfied, then lobectomy or segmental resection should be carried out. Drs. Greer, Forsee, and Mahon employed lobectomy in those cases where daughter-granulomata were found, in addition to the principal lesion. If local excision is feasible, then the greater portion of the functioning pulmonary parenchyma is thereby preserved.

Surgical Technique

In the two cases mentioned previously the local excision was accomplished by removal of a wedge-shaped piece of lung between two small clamps. The lesion is removed in such a way that it lies in the central portion of the triangular piece of pulmonary tissue.

The lung is over-sewn by a simple continuous chromic catgut stitch. The clamp is removed, and the suture is pulled up snug to prevent hemorrhage. The suture is then retraced along the line of suture, using this time a Connell-type of stitch. This stitch brings about approximation of the visceral surfaces of the lung and at the same time buries the first line of suture to pleuralize all the lung surface. The two cases in which this particular method was employed healed promptly, and there were no postoperative complications.

CONCLUSIONS

Pulmonary resection is a useful operation in certain lesions resulting from coccidioidomycosis. A local excision of small lesions located peripherally can be carried out with removal of a minimal amount of pulmonary tissue.

Coccidioidin skin tests should be scrutinized quite closely. A negative coccidioidin skin test should only be valid when the higher concentrations of the coccidioidin have been used.

BIBLIOGRAPHY

1. From a paper presented at the Annual Meeting of the American Association of Thoracic Surgery in Quebec, Canada on May 29, 1948.

2. Dr. Chas. Smith, Stanford University School of Medicine, Department of Public Health and Preventive Medicine, San Francisco, California.

Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

(The following case is presented because it is typical of a certain group which mystifies relatives and physicians alike. The signs and symptoms are subclinical and indefinite, and the field is the difficult one of growth, adolescence, and endocrinology.)

The CONSULTANTS are *Dr. Lester W. Paul*, Professor of Radiology, and *Dr. J. LeRoy Sims*, Assistant Professor of Medicine, the University of Wisconsin Medical School and State of Wisconsin General Hospital.

Dr. Paul is diagnostic roentgenologist at the Wisconsin General Hospital, is the author of articles on a variety of subjects, and saw the films of the present case. He is a member of the Radiological Society of North America, the American Roentgen Ray Society, is a Fellow of the American College of Radiology, and a Diplomate of the American Board of Radiology. Dr. Paul is personally known in Arizona, since he was a guest speaker for the Annual Lectures of the Lois Grunow Clinic of Phoenix, in February, 1948.

Dr. Sims has seen a considerable portion of the clinical material in the hospital and outpatient services, and is especially well-qualified to meet the current problem. He is a member of the American College of Physicians, the American Federation for Clinical Research, and is a Diplomate of the American Board of Internal Medicine.

CASE NUMBER XIV

The patient is **a white girl who was 13½ years of age** when first seen. Her family had moved to Arizona from Chicago a year before, and she was a student in first year of High School.

She was **referred** for a complete examination by an ophthalmologist. Though she was well in

general, she had been subject to **headaches** during the previous 1½ years. Sometimes they were ordinary ones, but on four or five occasions they had started with a throbbing in the left side of the head, progressed to a severe headache on either the left or right side, were accompanied by emesis in half an hour, and were followed by relief and fatigue. The parents were also worried about her **height.**

She had had **nightmares** several times in the month after the last severe headache, but none during a month's trial of phenobarbitol. She had noted **vertigo** two or three times a day, and **an occasional blackout.** After refraction she was unable to wear the glasses because they produced vertigo. The fundi were normal, but there was a slight bi-temporal contraction in the visual fields.

All other **systems** were asymptomatic. Her **menses** began 10 months before, occurred every three to four weeks, lasted five to eight days, the flow was scanty, and she had had mild cramps. There was no relationship between the menses and the headaches.

The **past medical history** was negative except for tonsilectomy as a child, appendectomy for an acute infection 15 months previous, and a slight sinus infection while living in the mid-west. She has had no signs of allergy. The **family history** includes **a father who has headaches,** and a **mother who dominates** the family, in a pleasant way. **The father is 6 feet tall; the mother 5 feet 7 inches.**

On physical examination the girl was seen to be tall (5 ft. 8 in.), tanned and well-nourished (135 pounds). Her nails were closely bitten. The tongue surface was scrotal and geographic. The teeth were poorly spaced. The sinuses were normal. The breasts were nubile. The heart and lungs were normal by fluoroscopy, there was a sinus arrhythmia, P2 was accentuated, and the BP was 100/70(R), and 94/70(L). All other findings were normal, including reflexes, sensory tests, bone structure, etc.

Among the **considerations for a diagnosis** were a pituitary-thyroid disorder, normal growth changes, and adolescent maladjustment.

A blood count showed 11.8 grams (86%) Hb., 4,430,000 R.B.C., and a normal W.B.C. (with 4% eosinophiles). A basal metabolism test was minus 20%. **Lateral x-rays of the skull** showed a normal but quite small sella turcica, measuring 7-8 mm in depth and 9 mm. longitudinally.

The skull films were sent to **Dr. L. W. Paul, radiologist** at the Wisconsin General Hospital, who had considered the problem with **Dr. E. L. Sevringhaus,** endocrinologist. He agreed that the sella was small but that it was not distorted, and that the walls were not altered in density. They had noted clinically that the sella was abnormally small in many patients presenting evidence of pituitary dysfunction, but proof and statistical study had been lacking.

The diagnosis was therefore indefinite. Thyroid extract was prescribed, starting with ½ grain per day, and the daily dose was increased each week by ½ grain. She was also given ferrous sulfate and an order for atropin and amidophen, to be taken at the start of any headache.

After three months, the general condition, height, and weight were the same. She had had one headache, cause unknown, but no vertigo. The menses and blood pressure were unchanged; the RBC had become normal; and the BMR had been found to be (—)18 and (—)19% on 2 grains of thyroid per day.

The menstrual period was associated with severe cramps during the next month, and when it was over she was examined by a gynecologist. The genitalia were normal. The consultant noted that the patient's mother was ubiquitous, and considered her a possible factor in the girl's symptoms. He suggested that 15 gr. of dessicated pituitary extract be given, as well as 3 grains of thyroid per day.

Three weeks later the patient volunteered that she felt wonderfully well, with no headaches, vertigo, etc., and with scanty dysmenorrhea. Her symptoms were few in the next two months, and the BMR rose to (—)9%.

Four months later her condition was the same. The BMR was (—)30% in a different laboratory, but the serum cholisterol was 171 mgm. (a figure said to fit hypopituitarism rather than simple hypothyroidism). Her weight was increased slightly to 141, but the height remained stable. It was noted that her irritability depended on whether she obtained enough sleep, and that mild headaches and attacks of vertigo in school depended considerably on her happiness and success.

A year later she was examined by a second Gyn. consultant. Her weight had risen to 149 pounds; the height was 68¾ inches; the thyroid isthmus was said to be slightly enlarged; and the uterus was said to be of a "juvenile" type.

His diagnosis was **thyro-pituitary hypofunction,** and the same therapy previously used was prescribed.

At present the absolute diagnosis is still uncertain; the response to therapy is not remarkable; the situational element is a possible factor; and the prognosis is not known.

QUESTIONS:

1. What is the probable diagnosis?
2. Is the size of the sella turcica associated with a small pituitary and a lowered function?
3. What are the causes of the headaches, vertigo, dysmenorrhea, etc.?
4. Is the patient's body structure a result of endocrine dysfunction, heredity, or both?
5. What therapy would seem best?
6. What is the chance of actual gigantism?

M. D., Tucson.

RADIOLOGIST'S ANALYSIS—

There is no concrete evidence to indicate that a small sella turcica indicates a decreased function of the pituitary gland. It has been our impression that such a finding is noted more frequently in individuals with clinical signs of hypopituitarism than in normals, but proof for such an assumption is lacking and it cannot be considered as a significant diagnostic sign. Additionally, small sella turcicas have been noted mainly in pituitary dwarfs while the patient under discussion is above normal in height.

In the present case *roentgenograms are chiefly of interest for the lesions which can be excluded on the basis of the roentgenologic findings.* An expanding lesion in or adjacent to the sella is hardly possible. Thus an eosinophilic adenoma of the pituitary gland which might give rise to gigantism is almost certainly not present. Such a tumor also alters the appearance of the cranial bones generally, and these findings are absent. Similarly, a craniopharyngioma can be ruled out since this tumor calcifies in about 80% of the cases and almost invariably causes some changes in the size and shape of the sella. A chromophobe adenoma produces a general enlargement of the sella. Also, these latter two lesions result in a stunting of growth rather than gigantism.

From the roentgenologic findings it can be stated that *there is no involvement of the pituitary gland by intrinsic or extrinsic tumor;* that *the small size of the sella probably is without significance* in this patient; and that, if there is hypopituitarism, the diagnosis must rest on clinical rather than roentgenologic evidence.

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CLINICIAN'S ANALYSIS—

This girl's parents are fairly tall. She is of average weight for her age and height, and her sexual development seems to be within normal limits. The small sella is compatible with pituitary dysfunction, but may be seen in normals. Bitemporal contraction of visual fields, if confirmed, would suggest an expanding lesion in the sellar or suprasellar region rather than decreased pituitary size. Evidence presented shows clearly that the low metabolic rate is not due to thyroid deficiency. Its mechanism is obscure, but it is not an uncommon finding in slender adolescent girls who subsequently develop normally.

The probable diagnosis is that of constitutional or genetic statural overgrowth, plus a mixed type of psychoneurosis; there is probably no significant decrease in pituitary function.

The symptoms can be explained by *an anxiety tension type of psychoneurosis, associated with vasomotor instability and hyperventilation.*

The body structure reflects genetic factors rather than endocrine dysfunction, and actual gigantism is unlikely.

Therapy should be directed toward the factors, operative in production of her psychoneurosis, and should avoid any implication that she is "abnormal." *Reassurance* should be given that her unusual stature is a normal variant, and she should be helped to adjust to the situational problems it creates. Her parents should be included in the program of psychotherapy.

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TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

This current column will run the gamut of therapy from A to B. ANTIBIOTICS, that is . . . Penicillin is being jostled for room by some of its cousin drugs, but certain data on progress of its use are both exciting and valuable, and most likely will prove applicable to the new arrivals as they become more widely available.

ENHANCING THE EFFECT OF PENICILLIN is a logical target for research workers. They are sniping at the problem from a dozen angles, and fast. The objectives are to decrease the cost, to increase the height and duration of effective blood levels, and to increase the convenience of dosage. . . . The approaches have included methods to SLOW THE ABSORPTION, such as chilling the site, the inclusion of vasoconstrictor drugs, the use of an oil, wax, or gelatin vehicle, and the combination of penicillin with procaine; methods to DELAY RENAL TUBULAR EXCRETION, using numerous "blocking" drugs; methods to selectively SUPPRESS PENICILLIN EXCRETION, giving caronamide or sodium benzoate by mouth; using inactive, unsoluble salts of penicillin (silver, mercury, or iron) which become active in vitro; and using a COMBINATION OF DRUGS, such as penicillin, procaine, oil, and aluminum monostearate.

PROCAINE can interfere with the action of sulfonamides. As now given with penicillin (in the form of procaine-penicillin, procaine-penicillin in oil, etc.) IT DOES NOT DO SO, however. . . Penicillin is slowly hydrolyzed from the procaine, which is then slowly metabolized from a procaine base into two portions, one of which is paraminobenzoic acid (PABA). . . . The PABA competes against the sulfonamides, but the quantity at any given time during more than 24 hours after a 300,000 unit dose is so small as to be negligible. So says Dr. R. M. Watrous of the Abbott Research Laboratories' Dept. of Medicine.

Dr. Watrous also says that claims for the effect of ALUMINUM MONOSTEARATE in prolonging the assayable blood levels of penicillin are bona fide. . . . They have to be, since the Food and Drug Administration requires protocols before the manufacturer can advertise. . . . A single dose of 300,000 units of procaine penicillin in oil, plus aluminum monostearate, results in assayable ("minimal therapeutic") levels IN ALL PATIENTS FOR 120 HOURS (5 days), and produces notably high levels for the first 96 hours. . . . It is probable that some such combination will be the answer to the needs of patients with syphilis, endocarditis, and bronchiectasis.

The first report on the combination of other drugs with streptomycin to lower the incidence of resistance has been reported in the Proceedings of the Staff Meetings of the Mayo Clinic by Karlson, Pfuetze, Carr, Feldman and Hinshaw. COMBINED USE OF STREPTOMYCIN, PROMIN, AND PARA-AMINOSOLYCILIC ACID has resulted in a definite decrease in the percentage of cases with resistant strains in a small series. One case in twelve was found to have a resistant culture after 3 months of therapy compared to an expected per cent when only streptomycin was used.

Sadder than the blow to a columnist, who sees his forthcoming paragraphs outdated by the daily papers, is the jolt to a medical investigator who invents a therapy, proves its worth, and then is passed in the stretch by a better method. . . . Spink found STREPTOMYCIN AND A SULFONAMIDE TO BE OF HELP IN BRUCELLOSIS. At the end of his recent paper in the J.A.M.A. was the pathetic footnote,—AUREOMYCIN has now been found to be a more effective drug.

The mild effect of PENICILLIN on gram-negative bacilli has not prevented A HIGH DEGREE OF PROTECTION FROM BOTH RUPTURED APPENDIX AND RUPTURED PEPTIC ULCER. . . . As recently as the summer of 1946, Dr. Alton Ochsner of New Orleans mentioned his tentative trial of the drug in prevention of peritonitis during a discussion at the Pima County General Hospital. . . . Now, Brown and Andrus have reported its marked effectiveness in 97 cases of appendiceal perforation and 42 cases of perforated peptic ulcer, when given in large doses postoperatively (100,000 U. every 2 hours for an average of 5.3 days). Only one appendiceal case died (of a mechanical fault) and only 6 developed abscess. Only two of the ulcer cases died, both having received low initial doses of penicillin. . . . A new antibiotic will probably be reported as more effective within a few months.

The FIRST AUTOMOBILE used in Arizona was said to be owned by a physician, Dr. H. W.

Fenner of Tucson. . . . It was called a "horseless buggy," and that is exactly what a picture of it looks like.

CORRECTION—After reporting the use of exsanguination transfusions for erythroblastosis (January 1949), a controversy was noted in the literature concerning the type of blood to be used. In order to set the matter straight, the question was put to DR. LOUIS K. DIAMOND, a pioneer in the subject, a faculty member at Harvard on the staff of Boston Lying-In Hospital, and director of the new Blood Grouping Laboratory for Boston hospitals. His reply, "since 1941, not only our group but most other clinics have used Rh NEGATIVE blood only. Rh positive blood was advocated on theoretical grounds . . . it is not sound thinking. . . . The combination of Rh negative transfusion, plus replacement technique, which removes so much of the free antibody carried over from the mother's system, is the best technique in our opinion." . . . He also mentions that severe reactions are no more common (in 160 replacement transfusions) than in transfusing any sick infant.

THE INDUSTRIAL COMMISSION OF ARIZONA is closely concerned with medicine most of the time, but doesn't get much publicity among physicians. . . . The Commissioners are appointed by the Governor for six-year terms, subject to the approval of the Senate. At the present time Mr. J. J. O'Neill is Chairman, and Mr. Fred E. Edwards and Mr. Ray Gilbert are members. Mr. John Gavin is secretary and Mr. Russel Morgan is claims manager. . . . The MEDICAL BOARD FOR OCCUPATIONAL RESPIRATORY DISEASES is appointed by the commission, and now consists of Dr. Leslie Kober of Phoenix, Dr. Louis Baldwin of Phoenix, and Dr. Dan Mahoney of Tucson.

ANOTHER SIDE OF THE ARTHRITIS PICTURE — "Dear Sir—I like to do somethink good for umanity. I know that thousant of the peoples sufer with the Rheumatism and cant find no Relief. doctors never Bin able to cure Rheumatism yet I have the Recipi that will Cure. I have Cured myself and Cured others But I cant go on and Cure with out Pay wich is the law don't aloud for me to make the Charges so I disided to see if I can find interestad pary. I am willing to Sacrifise at very Reseneble Price just to help the Peoples get Cure. Yours truly.". . . . Well, a guy can try, can't he? The name and address are available on request. . . . If the new Rheumatism Foundation isn't "interestad," certain other "parys" could do worse—and possibly have. Spelling is no absolute criterion for either sincerity, altruism, or scientific worth; it just helps if you're an editor.

A report of semi-medical importance has been issued by the Army Committee for Insect and Rodent Control. . . . A SOLUTION OF 5% DDT is far more effective in protecting wool cloth from moths and other insects than any of the currently used insecticides and repellants. The tests were made in the Department of Agriculture.

The VALUE OF ULTRAVIOLET RADIATION for prevention of respiratory infections in dormitories, living quarters, offices, and public places is reported to be VERY DOUBTFUL by the USPHS. They have tried it for several years in prisons and army training centers. . . . Now, we have advertisements for the GLYCOL VAPORIZER, a device which runs by electricity, costs $59.50, uses a glycol-impregnated paper, and "instantaneously kills air-borne germs, viruses, and bacteria" (sic). Among the bacteria (or germs) is listed "tubercle bacilli." . . . As we used to say in Old Mexico, This I must See! . . . Experimental use of the glycols has been promising, but the proven scope is hardly so wide. Expect a check-up report next month.

DIURETICS may rid the body of fluids and sodium in cases of persistent edema. The mercurial xanthine drugs (Mercupurin, Mercuhydrin, Salyrgan, etc.) have been very helpful. . . A fairly new drug, THIOMERIN, is said to be 160 times less toxic than former drugs. It combines the organic mercurial with a sulfur, which decreases the irritating and toxic effects. It can be given subcutaneously without pain. A small dose should be given first to test for sensitivity.

The latest estimate of the relative value of ANTITHYROID SUBSTANCES is as follows:—Propylthiouracil is No. 1 in efficacy and safety. It is considerably superior to thiouracil, with more regular remissions, rare myxedema, and very rare depression of the bone-marrow. Methylthiouracil is still in the process of evaluation. . . . IODINE has been displaced to No. 2 because of its failure of effect in many cases and its tendency to produce refractoriness. It is useful as an adjunct to propylthiouracil. . . RADIOACTIVE IODINE is still being studied, and is valuable as a diagnostic agent. It must be regarded as no higher than No. 3 at present because, though it suppresses thyroid activity, and is simplest to use, it may leave fibrosis in the gland and cause protracted myxedema. . . . The use of pure medical therapy is advised for bad-risk patients, for children, and for post-operative recurrences. A trial is worth while in exophthalmic (Grave's) disease. Antithyroid therapy, followed by surgery, is the method of choice for toxic nodular goiter.

An international news digest (Kenneth DeCourcy) predicted that THE TRIAL OF HUNGARIAN ECCLESIASTICS would be based on "confession," and that the drug "scopomorphine" would be used. The digest describes two drugs which are used by the Soviet police;—(1) SCOPO-

MORPHINE: Composed of scopolamine and morphine. Drugs the brain, and produces a loss of will-power and orientation. The subject lives in a dream-world, and the mental processes become a mixture of contradictory pictures. (2) ACTEDRON: Composition not stated. Affects the nervous system. Results in initial courage and resistance for a day, followed by severe headache and dizziness, a stage of panic, then a sense of "voidness" and inability to resist suggestions, and finally a moral collapse. . . . We are inquiring about this latter drug, and will report later.

Mas des pues.

PROBLEMS OF THE GENERAL PRACTITIONER*

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The problems of a general practitioner are most familiar to me, and I feel fired with desire to justify being a general practitioner. Perhaps the title of my paper should have been "Why I am a General Practitioner." There are times when I wonder why myself—but even a horse thief has to rationalize his existence.

There have been occasions, when at scientific meetings I have felt apologetic for not being a specialist. The attitude, as I sense it, has noticeably changed in the last two or three years. More recently, general practitioners at scientific meetings and post-graduate courses are talked *to*, not *down to*. The literature seems to be increasingly sprinkled with the problem of the growing shortage of family physicians. One also sees concern over the shortage of specialists who are certified by the various specialty boards.

There still seems to be a trend in medical thinking toward the concept that only specialists are qualified to treat patients. I do not wish to imply that I question the importance and necessity of highly trained specialists in the diagnosis and treatment of some patients;—hardly a day goes by that I do not thank my lucky stars there are excellent and competent men upon whom to lean less than 170 miles away. But I do maintain that a system of practice will crash of its own weight, in which patients are passed around from one specialist to another (and very expensively), for the diagnosis and treatment of their everyday illnesses. Medicine has been undergoing a change, leaving fewer and fewer with a broad scholarly knowledge of Medicine. The laity is painfully cognizant of this trend.

Medicine today is in a vortex which has been created by its own progress. As the profession becomes more exact, specialism becomes more necessary, and, since no one person can possibly know everything, it becomes increasingly difficult for the patient to obtain comprehensive medical care.

The figures on medical school graduates and new applicants for licensure in various states run about the same today: 85% to 90% intend to be specialists; whereas only 10% to 15% signify intention of entering general practice. Most authorities agree that these figures should be reversed. You are all familiar with the reasons for the big swing to specialism—larges fees, better hours, city living, etc. Nevertheless, it is common knowledge that 85% of human ills can be adequately cared for by competent general men. How, then will 15% of the medical population be able to see and treat adequately 85% of the illness? If there are so few general men left that already they are forced to make exhorbitant charges to discourage house calls, it won't be long before those few will have vanished and there will actually be a poorly-cared-for population. Then the "something-for-nothing" people can easily get public opinion in favor of political medicine. During the late war, the doctor at home was to the laity something of a hero —overworked, tired, trying to keep the women, children and aged cared for. But now and in the future, if the Profession as a whole can't get its menial chores done, the government is going to be *begged* to give them all a specialist, for everything, free of charge.

The literature on my subject is full of reports from Deans of various medical schools and chiefs-of-staff of many large hospitals on what is being done and proposed to bring the general practice of Medicine and Surgery again into respectability. More and more medical schools are stressing out-calls service and preceptorships to train their students in more of the on-the-scene- experience as the average general practitioner finds it.

*Read at the Ninth Harlow Brooks Memorial Navajo Clinical Conference, Ganado, Arizona, August 30, 31, September 1, 1948.

Many large hospitals are looking toward the inclusion of qualified general practitioners on their staffs, by one form of classification or another. A sour note strikes me, however;—in not *one* of the articles I found on the subject is there mention that the proposed general practitioner staff man would be allowed to remove a tonsil or appendix! No wonder all the students want to be specialists.

I am glad to report that my personal contacts with many eminent specialists, particularly in Surgery, Internal Medicine and Otolaryngology, have not been quite so discouraging. They recognize and are free to state that the average Class A graduate of today is well grounded and well trained, and especially if he has gained enough self-confidence in the crucible of rural practice, is capable of doing just as good a job of tonsilectomy, appendectomy, cholecystectomy, or hysterectomy, as the specialist. It was most gratifying to me to sense the attitude of the fine instructors in Surgical Technique at the Cook County Graduate School. In contrast with the attitude of the surgeons ten years ago, during my internship, they give freely of their time teaching general practitioners how to perform gastroenterostomies and gastric resections, with the idea that they are going back home to do them, instead of saying, "well, you can watch me do this, but it might be a tough appendix and you should never try to do one yourself." Most of the best minds today agree that all specialists should have at least five years of general practice. The reasons are obvious, but we G. P.'s who have stayed with it resent being treated like mental deficients who were just not quite smart enough to graduate to the heights of specialism.

Since writing this paper, I ran across an announcement in the last issue of my own state's medical journal, which I should like to quote in part here: "On Friday, May 28, 1948, a large group of out-state and Omaha practicing doctors met to organize the Nebraska Chapter of the American Academy of General Practice. . . Officers were elected and the constitution and by-laws adopted. The American Academy of General Practice, a national organization of general practitioners of medicine and surgery is a fast-growing organization with potentialities of becoming second only to the A.M.A. in size. . . The academy was founded last June at the convention of the A.M.A. The basic philosophy of the Academy is to improve standards and quality in general practice among the general practitioners who render more than 80% of the medical care furnished in this country today which will react to the benefit of all the public and all the medical profession. Its objects are to (1) Promote and maintain high standards of general practice of medicine and surgery. (2) To encourage and assist young men and women in preparing, qualifying and establishing themselves in general practice. (3) To preserve the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience. (4) To assist in providing post-graduate study courses for general practitioners, and to encourage and assist practicing physicians and surgeons in such training. (5) To advance medical science and private and public health. . . . With the tendencies toward over-specialization and centralization in medicine, a poor distribution rather than a scarcity of doctors has developed causing rural areas to be poorly covered . . . if the rural problem is not readjusted, the rural population will turn to demand federal medicine. . . . Dr. Paul Davis, President of the New National Academy, proposes these measures: (1) Encourage Communities to take advantage of the federal grants for rural hospital construction. (2) Encourage medical schools to teach men to become good general doctors and to treat diseases on a human basis. (3) Develop post-graduate training which will be available to physicians in rural communities. (4) Establish sections of general practice in all hospitals, and internships for the general practitioner. (5) Encourage rural communities to make facilities available for a doctor and his family, such as good schools, good living conditions *and a hospital*. Certain things in recent years have aroused the family doctor to organizational action, for example the tendency of hospitals in some eastern cities to restrict admissions only to patients of specialty physicians on the staff. . . . The Academy intends to carry on its program in cooperation with the specialty boards and through cooperative efforts with the A.M.A. and the American Association of Medical Colleges . . . to raise the general level of the quality of medical care throughout the country."

To put an end to generalization of the problems and be more specific, let me mention a few of my own observations and experiences with specialists. My largest bone of contention, I

believe, is with the dermatologists. In my 10½ years of practice, almost 100% of the knotty skin problems I have seen and referred, have been sent home either with no report from the specialist, or with a short note stating something like this: "Thank you for referring Mr. Blank to us. We have given him three prescriptions (which are filled in the pharmacy downstairs) and instructed him to return to us in three weeks." Not a word as to what the diagnosis is, or what the prescriptions are, or what I can do for the patient at home. But he is expected to make another 170 mile trip (in one or two cases, 400 miles) to determine whether he has improved or not!

Four or five years ago a patient, 16 years of age, a rural high school student and a member of one of my largest and most loyal families, came to the office complaining of recurrent pains in the wrists, knees, and ankles. The pain at times was severe enough that he found it difficult to write in school. There would be low grade fever, and even chills at times. Physical examination was negative, and so was dental investigation. The sedimentation rate being slightly elevated, I started to treat him as a possible rheumatic fever patient. The father, being a farmer and needing the boy on the farm, suggested taking him to a large and nationally known famous Clinic to see what could be done or found to shorten the long period of bed rest I had suggested. Since I never refuse to employ consultation for any patient when the family or patient request it, I secured an appointment for the boy, and he went. In due time he returned with glowing tales of how they "gave him the works." Some weeks later I received a letter of exactly three paragraphs stating that the boy did not have rheumatism and suggesting that I arrange with his teacher to have him drop his shorthand and typing course because his wrist pain was probably due to his dislike of the subject. The school year being almost over, I didn't travel the 12 miles to his school to see his teacher, and he somehow managed to graduate anyway. His attacks of "rheumatism" persisted, defying the usual therapeutic measures. Then, in April of this year, the boy's father came with enough of his own symptoms to cause me to skin-test him for undulant fever. The test was mildly positive, but the agglutination was negative. However, the father wanted all seven of his boys skin-tested, and the only positive one was the "rheumatic" boy, now 21 years of age. His agglutination was positive—titre 1:1280! I am happy to report that under the treatment outlined by Dr. Benning in his paper at Ganado last year, the boy is recovering. I have been afraid to ask what the Clinic charged.

To the above involved tale may be added a few more, like the one in which the surgeon to whom I referred a toxic goitre patient, not only removed the goitre, but repaired her hernia also—I could possibly excuse him more gracefully had he done it under the same anesthetic, to save the patient an extra trip to the operating room, but he did the hernia five days later. Then there was the EENT man (a classmate of mine) who informed my patient that no G.P. is qualified to remove tonsils . . . so the people cancelled the operation I had scheduled and went back 70 miles to have the work done. I may get to remove the tags that have hypertrophied—I don't know.

I must confess that at times I use the specialists frankly as a "stopper" mechanism not only to bolster my own morale and faith in diagnosis but to convince the patient that her fears are groundless and probably associated with her particular station along life's tortuous pathway. A good many fair, fat, frustrated females, forty-five and flushing, complicated by phobias, seem to have to be assured by all the "ologists" in the city that they do not have cancer, "female trouble," coronary thrombosis, toxic goitre, lymphatic leukemia, or one of many other dread killers they study about in the Reader's Digest, before they will take their family doctor seriously. So I send them away to the city and they come home very content to take their theelin and I feel good to think that I have not missed anything. I do have a rather guilty feeling at taking up the specialist's time with such time-consuming cases, but the stimulus it gives my ego (at the patient's expense) and resultant relief from the too-frequent office calls for varied and obscure complaints, is second only to taking time off to attend medical meetings to find I haven't been doing so badly after all.

One more thought occurs to me while on the subject of my experiences with specialists. This is the long delay sometimes encountered in securing appointments for patients whom I wish to refer. I notice on their letterheads something like quote, "Hours—2:00 to 4:00", unquote. I

know that one of the reasons for many men going into a specialty is the opportunity for a more abundant life, but it does seem to me if they would plan to spend a little more of their time in their office, they would get more work done. Some of my patients have the queer notion that if their condition is serious enough to require a specialist, they should be seen more promptly than two to three weeks hence. I am glad to report that this has not happened often enough to me to require further discussion here.

General practitioners have some economic problems which are at least partially foreign to the city man. One who is attempting to do a creditable job of caring for his patients these days is faced with the enormous expense of equipping his office with the latest equipment. In our community, as in many, if he wants a hospital, he owns and operates it himself. If anyone here knows of an individual who wants to own and run a 20-bed hospital, I have a bargain.

True, one who owns his hospital has things his own way, but too much. I want a white count in the middle of the night—I do it myself. I want x-rays of the accident victim who is brought in on a Sunday or holiday—I go over and take them, develop them myself. The same accident victim or victims need transfusions—who types the blood? I do. That O.B. who had to be put downstairs because all the upstairs beds are full is about to precipitate. Who runs the hand-operated elevator to get her to the delivery room? I do. Miss So-and-so is sick tonight and can't come to work—where can we find another nurse? Miss Such-and-such hasn't had a day off for three weeks and we can't ask her—it's against the A.N.A. minimum work standards.

You must, by now, wonder what there is in this paper that would make *anyone* want to pursue the general practice of medicine. You are probably saying to yourselves: "This guy's going to be reaching for the nitroglycerin long before the age when he might reach for the testosterone"—and you are probably right, at least my wife keeps reminding me so. But there are the problems, and I might say the satisfactions that come to the general practitioner, which I have not yet mentioned and for which I would not trade the most lucrative specialty in the world. From among these pleasant aspects I might mention a few, such as, (1) the great variety of interesting cases, (2) the opportunity of being the first to see the great bulk of unusual things, (3) the feeling that you are contributing to the health and well-being of the community, (4) the satisfactory experience of watching entire families grow up, being so intimately connected with their joys, sorrows, and problems, and being welcomed at any time to the innermost confidence of any member. Yes, even being able to receive the gratitude of every member for the indispensible part they are sure you played in saving a life. It is a milestone in anyone's career to be able to place in a mother's arms a healthy babe, born almost three months prematurely, and weighing only 1 pound, 13 ounces at birth, over which you have spent many a weary hour trying to maintain that spark of life.

It makes you just a little proud of your inventiveness to be on a confinement case 30 miles in the country, the patient needing an enema to hurry things along, to have to take your stethoscope apart, attach a catheter to one end and the funnel used for filling the gasoline stove at the other end, with one binaural as connector between the two lengths of rubber tubing, to give the enema. Since Pearl Harbor, all our O. B. cases come to the hospital, thank goodness.

Not many surgeons, in their lifetime, I am told, have the opportunity of seeing firsthand a colloid carcinoma of the appendix. I had one about two years ago. The woman, 85 years old, presented symptoms of appendiceal abscess. Resection, with ileo-clostomy gave her eight weeks of comparatively comfortable life before the transplants of the ruptured jelly-like tumor mass and a worn out myocardium took her life. Another diagnostic dilemma rarely seen, was a ruptured accessory spleen in a high school football player. It wasn't as difficult to remove as it was to find.

There's a certain thrill to going into a belly in the middle of the night to remove a gangrenous gallbladder 7½ inches long and three inches in diameter, with only two other people in the operating room: your faithful office nurse who doubles as anesthetist, and circulating nurse; and your scrub nurse, who also plays the role of first assistant, resident and intern.

Then, there are the walking pathology laboratories, such as the patient whose diabetes you have been trying to keep under control for years, who develops laryngitis, bronchial asthma, bronchopneumonia, depressive psychosis with suicidal tendencies, complete urinary suppression, then nephrosis,—each separately and in the or-

der named. You pull him through all of these, with the help of the Lord and plenty of transfusions and penicillin, and when his edema doesn't clear up as fast as he and you would like, you refer him to an internist who comes up with the proof that he has a constrictive pericarditis. The internist sends him home for a full mouth dental extraction and a tonsilectomy. P. S. The patient is still alive, though still running an elevated Sed. rate and recurrent albuminuria. The family physician and the dentist are expected to recover soon.

SUMMARY

(1) The general practitioner must combat an inferiority complex. He needs to realize that he is just as much a doctor as is the specialist. The specialist must keep this in mind also. (2) We should strive for a better distribution of doctors to combat the growing public dissatisfaction with organized Medicine. (3) Unless the people with 85% of the illness can get comprehensive, reasonably priced care, political medicine will be foisted upon us all, and the specialists will not be the least to suffer. (4) Medical schools and large hospitals, as well as the newly organized American Academy of General Practice are taking steps to reverse the trend to over-specialization. (5) Present day specialists in all fields can do, and are doing, much to encourage qualified general practitioners to be content with their place in the sun, especially with respect to Surgery. (6) There is still room for a few specialists and large clinics to improve their relations with the general practitioner. (7) Most busy general men have economic problems with respect to overhead expense and hospital facilities that are not understood by most specialists. (8) There are pleasant and stimulating aspects found almost exclusively in general practice which should be stressed in attracting young graduates to choose general practice.

It is certainly hoped that my criticisms of specialists will be taken in the spirit in which they were intended, and that is, for the possible improvement of the service to mankind by our noble profession, the better understanding of our mutual problems, and the more effective and efficient care of our best friends—our patients.

GOVERNMENT MEDICINE -- ITS RELATIVE EFFECTIVENESS AND ECONOMIC REPERCUSSIONS

DR. MELCHIOR PALYI
Chicago Economist, Lecturer, and Writer

You may have already heard the story that I came across in Europe about an American businessman visiting Czechoslovakia. He was being shown around a factory and he asked the question: To whom does this plant belong?

The answer was: The plant belongs to the workers.

Then he comes out of the factory and sees a dozen cars standing in front of the plant, and he asks: To whom do the cars belong?

The cars belong to the bosses.

With us in America it is just the opposite: The factory belongs to the bosses and the cars to the workers.

It is somewhat similar with the medical system over there and here. In Europe the medical establishments belong to the people, so to speak, and they are poorly serviced; in America the doctors are independent and the people get good service.

Coming back to Compulsory Medicine, I devoted much time on my European trip this summer to the French situation. Why is France heading toward financial bankruptcy internally and externally? She cannot pay her bills at home, and she cannot pay her bills abroad. Despite the Marshall Plan, conditions are getting worse. Things are heading for chaos.

What is the trouble with France? I shall not try to tell you the whole story but let me point out one aspect of it which has to do with your problem.

Financially, France is bankrupt internally and also externally. She is headed toward monetary chaos and political as well as moral chaos, to a large degree because of her social security system, and the most essential—the most dangerous

Read before the 1948 National Conference of the Professions under the sponsorship of National Physicians Committee and the National Committee of Dentists.

item in that social security system, is socialized medicine.

Here is how the situation has developed in France. The French had no socialized medicine before World War I. After they took over Alsace from the Germans they found there the German social security system, which was supposed to be the world's best. It was introduced by Bismarck, who was an extremely shrewd politician, so shrewd that he has been imitated by the little politicians to this day all over the world.

Bismarck didn't care much about medical care and whether or not people got it. Political control of the medical care system meant two things to him. In the first place, he expected to raise money to provide the care—people pay now and get the benefits later. That is one idea behind all social insurance—it puts funds in the hands of the government.

Bismarck needed money constantly for military purposes and time and again he had trouble with his Parliament for not voting enough money. Little extra funds which could be invested in government bonds were a handy thing to have around.

Speaking of Bismarck's Germany—not of the United States at this moment—he had a Social-Democratic party on hand which was fighting the Imperial regime tooth and nail; and he wanted to subdue that Socialistic party, to take the wind out of its sails, and to get control of the workers by offering them so-called social services, a technic not unknown to politicians elsewhere.

In both directions he made a great mistake. This sort of socialism turned out to be a boomerang. The Socialist party and the Trade Union movement made more rapid progress from there on than ever before. Bismarck gave impetus to the growth of Socialism among labor. It was the growth of Marxist Socialism, because the Social Democrats in those days were definite, absolute Marxists. Moreover, it turned out that he didn't get any money out of the social insurance scheme; on the contrary, he had to go with his hat in hand to Parliament for funds to cover the deficit due to socialized medicine costs.

It turned out that year by year medicine is a most expensive type of social security. A lot more turned up, but I will come to that.

Well, the French took over Alsace and with it the German Social Security System and they let it continue for a time as it was. But they soon recognized its shortcomings. After much study and wrangling, they decided that the German system was not good—that it was loaded with hidden corruption.

The French found that out in no time. It was full of corruption for the simple reason that the free choice of the doctor and the free service were combined, and as a consequence everybody ran to the doctor to take advantage of it. If anyone wanted a little vacation, he went to the doctor and asked for an appropriate statement. The doctor, in turn, had to give it because if he didn't the patient went to another doctor. Since virtually everybody was a member of the socialized medicine system, with very few exceptions in the upper-middle class and the upper classes, the doctor didn't make a living without the mass clientele.

Doctors had to cater to that clientele by making compromises, to put it mildly, with the result that the more a doctor was willing to listen to the patients' requests the more clients he had.

The fee was very low—it had to be low—the equivalent of 25 or 50 cents per visit.

Naturally the quality of the service suffered accordingly. The responsible doctor had no patients, and the doctor who had no time to be a good doctor, had them all. Also, the expenses involved were mounting. The decent worker who got no medical care because he did not need any, and would not swindle, had to pay for the other fellow who preferred not to work but instead run to the doctor, and who, in the framework of that system, could take advantage of the doctor and extract economic favors from him.

The natural sequel was a deficit which the taxpayer had to make up. Corruption over corruption was the result of that famous classical German system of socialized medicine.

The French found that out very quickly and decided to correct it. They produced their own system. Like anything the French do, they did it logically and systematically and developed a very complicated bureaucratic scheme to avoid every corruption, with the result of creating even more corruption.

Here is how it works. In France the relation of the patient to the doctor remains apparently the same as under the free system. In other words, you choose your doctor just as in Germany but you pay him the regular rate—whatever his fee is—not the social insurance rate.

Then you present your bill to the social security administration.

Now that sounds fine. The present system of medical service is maintained, and all the patient has to do is to have the Government reimburse him for his medical expenses. Naturally, that cannot be done because the expenses would be much too high if the Government tried to reimburse all the expenses of all the patients; therefore, a partial reimbursement was decided upon. It amounts to from forty to eighty per cent of the doctor's bill, depending on what kind of service is rendered.

French doctors told me that 60 per cent is a fair average of the amount that is supposed to be reimbursed. But here again is how the system works: Somebody has to check on the doctor to avoid corruption. Otherwise, collusion might occur at the Government's expense. The doctor might make out a big bill and have the patient send it in and collect the money, to be shared between them.

A method had to be evolved for checking every doctor's bill. But what about the doctor working in collusion with the other doctor? So, another method had to be developed to check on the doctors who check on the doctors.

The system now works so perfectly that the patient scarcely ever gets his money back. On the average, he has to wait six to nine months and go through an ordeal of red tape and litigation. In addition, the practicing doctors and the supervisory agencies are in a constant feud with one another.

As a consequence, everybody is highly dissatisfied with the system. The patient never gets what he thinks he is entitled to and neither does the doctor. So the doctor naturally charges the double amount with the patient's connivance, and hopes to get half of it, or at least forty per cent. The patient in turn pays the doctor only on receipt of the money from the administration and enjoys in the meantime a sick-leave with pay—at the taxpayer's expense.

The corruption is so obvious that everyone talks about it. It is not even hidden, as it was in the German system. It is something every doctor will tell you about. He will tell you that he could not operate except by doubling his bills. If you inquire about the handling of the patient, you will find that much the same conditions exist as under the German system.

Again the question of who gets the patient arises. The patient does not choose the doctor because of his good medical service. What really determines his selection is the doctor's "cooperation" in deceiving the government.

I had a personal experience worth relating. To return to the United States, I had to be inoculated against small pox, as the American regulations require. The distinguished French doctor to whom I had been directed asked with perfect sincerity: "You wish to be inoculated or just to have a paper saying that you have been inoculated? The latter saves you expenses." It does, but I could not help feeling that what the French need is inoculation against socialism.

The worst thing, perhaps, about French compulsory health insurance is the same as that of its German counterpart. It produces a huge deficit. Much of the surplus accruing in the Old Age Pension Fund—a surplus that is supposed to serve in supporting the government bond market—is dissipated for the deficit in the health insurance fund.

Instead of using the Old Age Insurance fund for what it was supposed to be used for, namely, to protect the Government bond market which is slipping constantly, the money goes into the swollen administrative costs of the other branch of French Social Security. Incidentally, if you are thinking of investing your money in French bonds, I advise you against it.

Coming back to the French system of Compulsory Health Insurance—it operates with a huge deficit as all health insurance plans do and the government, that is, the taxpayer, has to make up the difference between contributions of the insured—employees plus those of the employer—and the actual amount of money spent. Such a deficit, which is a growing one, is typical of every Compulsory Health Insurance System, for several reasons.

For one thing, the financial trouble arises because everybody has a tendency to want something for nothing and to take advantage of the system by running to the doctor, asking for medicine, etc. The doctor, as mentioned before, has to be complacent or else lose his clientele. Another and even more important factor is that compensation for a short period of sickness of a few days is being particularly liberally handled in France. That, incidentally, results in raising sky-line absenteeism in factories and mines. It is one of the reasons why France's industrial production is lagging behind the pre-

war level while the country needs a greatly increased output to fill the need for current consumption, for her exports, reconstruction, and technological progress.

On top of all that come the administrative expenses. They are especially high in France because the French system tries to avoid the pit-falls of the German one, namely, the standardizing of medical service. The individual arrangement for fees between doctor and patient in France permits them to maintain a higher level of medical service than under the German system—and now also the British. But there is a price to be paid for that by the community, a higher cost of administration for controlling both the doctor and the patient. This results in an extremely complex administrative setup. The controllers, too, must be controlled, and so the politicians manage to create jobs for every brother-in-law they can muster.

Two months ago Great Britain turned to Compulsory Health Insurance, accepting the German pattern hook, line and sinker, with the patient's free choice of doctor, standardized rates for consultations, etc. In typical British tradition, the competition between doctors for patients is being somewhat restricted, and in smaller towns in Britain, a tendency has already developed among doctors to divide up the areas for service in terms of square miles.

It is too early yet to discuss the new British system since it has just started in operation. But already, it is obvious that its costs are mounting week by week. Already, it is obvious that specialists' visiting hours are being crowded, that hospitals have no space, and nurses are not available. Human nature re-asserts itself and especially it shows human nature diluted by utopian ideas of the individual's alleged right to costless service to be provided by the State which is presumed to have unlimited resources. The report from New Zealand that patients of the compulsory system have to make appointments with a throat specialist nine months in advance indicates the direction in which every such system is bound to grow.

Ultimately, there is only one of two policies to control Compulsory Health Insurance. Either the Government has to default by not fulfilling its obligations—by limiting services and payments to the patient to the absolute necessities, such as to major operations and their aftermaths. Or else to avoid letting it grow into a cancer on the financial body of the nation, it has to be converted into the Russian type of system where the patient's free choice of doctor is eliminated. That makes him a virtual serf of the doctor who in turn is put on a fixed salary. The one loses the incentive to take advantage of the insurance and the other loses the possibility of making money out of it. The patient is at the mercy of the doctor in Russia—and I saw that system operate many years ago in the Danubian countries—the doctor becomes a fixed-salaried bureauerat with no incentive whatsoever left. Bankruptcy of the medical profession under those conditions will be matched by the misery of the public.

The problem we are facing is an extremely serious one. There is nothing more obvious to the man on the street than the statement that he cannot get all the medical service he wants. There is nothing more plausible than that this should be remedied. It is difficult to explain that the remedy is not so simple, that it is much too costly and that it may cost him his job and his freedom. Socialized Medicine is the most expensive of all social experiments. If we follow Mr. Truman's latest proposals, we would have to carry a new payroll tax of approximately 9 per cent, according to the best statistical estimates which do not take into account the usual increase of pseudo-medical needs that arise automatically as soon as medicine is nationalized.

Socialized Medicine is one sure and safe road to bankrupt the nation. France's prime financial problem today is the fact that social security costs up to 25 per cent of the nation's payroll. The direct and indirect costs of compulsory medical insurance include the administrative outlay and the sick leave compensation which are the principal items in that picture.

Any system of Socialized Medicine has most dangerous moral and psychological consequences with financial consequences as well. Compulsory medical insurance is no insurance at all (different in that respect from accident and old age insurance) because the insured can take out far more than the equivalent of his contribution. The less the insured is bothered by his conscience, the more he will get out of it. This is an invitation to dishonesty and an incentive for absenteeism in industry. That is why the candle of France is burning at both ends, Socialized Medicine raises the national outlay to consumers and at the same time reduces the national output of

goods for consumers. More demand and less supply add to more inflation and unbalance.

Furthermore, once the premise is introduced in the relationship between state and the citizen that the latter is entitled to milk the former, it is very difficult to confine the application of that principle to Socialized Medicine alone. If a fellow is entitled to complete medical service for no good reason, and to get paid for his absenteeism from work too, why shouldn't he get a home free of charge and a few other good things of life? Government subsidies establish a dangerous principle, and they are most dangerous when they are applied to the consumer himself—to the great masses of the population. The sky is the only limit—and more precisely, national bankruptcy is inevitable.

The last but not the least consequence of Socialized Medicine is the unavoidable decay of medical service. The average doctor loses the incentive for qualitative accomplishments. Numbers of patients rather than good service to each of them is what he must aim at under socialization. That is his only way of making a living.

PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

A Federal Department of Health

1. Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces.

Medical Research

2. Promotion of medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research.

Voluntary Insurance

3. Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs.

Medical Care Authority with Consumer Representation

4. Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest.

New Facilities

5. Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies.

Public Health

6. Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services. Remuneration of health officials commensurate with their responsibility.

Mental Hygiene

7. The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas.

Health Education

8. Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care.

Chronic Diseases and the Aged

9. Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals.

Veterans' Medical Care

10. Integration of veterans' medical care and hospital facilities with other medical care and hospital programs and with the maintenance of high standards of medical care, including care of the veteran in his own community by a physician of his own choice.

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Editorials

Medical Aspects of Air Travel (Editorial)

Arizona has much to gain from travel by air, and Arizona physicians can be of great help in making such travel more safe and comfortable.

The seasonal visitors want to get to Arizona vacation spots in a hurry. Arizona residents want to take trips and return quickly. Sick people want to arrive within hours instead of days of travel. And, ill or well, they frequently want to know whether they may travel by plane without special hazard.

Physicians must understand the advantages and limitations of air travel, be able to predict the relative amount of comfort and safety, and be ready to prescribe assurance and precautions when indicated. A few reports have been published on the subject, but they usually have been restricted to a single aspect of the problem. It seems wise to view the subject from an Arizona perspective.

The facilities for travel to and from Arizona are excellent, and "feeder" air-lines connect the larger cities with the smaller ones. Civic groups have prodded and arranged for these services, with the help of the airlines, and the support of federal funds and fields. One may go east, west, and into Mexico on regularly scheduled flights in modern planes. The risk of accident is extremely low.

Equipment of the planes which are used for long-range traffic is now efficient and standardized. Air-conditioning is used to compensate for temperature, moisture, and altitude. Dr. K. L. Stratton, regional Flight Surgeon for the American Airlines, reports that cabins on all airliners are sealed, pressure-controlled, and reliable. The pressure is modified (by the pilot) according to altitude,—a sea-level pressure is maintained up to 8,800 feet; a pressure equal to 2,600 feet is maintained at 12,500 feet altitude; and a pressure equal to 5,200 feet at 16,000. The levels are lowered in the same ratios during descent. Oxygen is available for individuals or situations, P.R.N., but is rarely needed.

Planes usually cruise at levels between 6,000 and 12,000 feet, the height depending on such factors as weather, terrain, length of the flight, etc. The altitude of cities on southern Arizona varies from 142 feet (Yuma) to 1,083 feet (Phoenix) to 2,376 feet (Tucson), but mountains nearby are about 2,000 to 8,300 feet in elevation. The elevation over high-points on the southern California border is 2,000 to 5,000 feet; farther north, 4,000 to 11,500 feet; over the Grand Canyon area, 7,700 to 8,700; and over the western portions of New Mexico, the peaks reach 10,000 feet, though the air-lanes are at lower levels.

Normal individuals may travel with no discomfort or hazard, and *babies* travel better by air than adults, since their Eustachian tubes are wider and they are less often airsick. . . *Pregnant women* are advised to consult their obstetricians about flying if they have reached their eighth gravid month, though this is probably more a matter of dates than hazard. . . . Individuals with Eustachian tubes which are narrowed for various reasons may suffer, but decongestants may prevent symptoms in those with *congested noses and throats*, and drops or "sniffers" are recommended for use during flight. . . *Anemic persons* are not liable to have trouble unless the red blood count is severely low (minus 2.5 million cells). People who have had *recent operations* on the chest and abdomen may have discomfort at great heights, due to expansion of the air in the intestinal tract, and hernias and pep-

tic ulcers theoretically might also provide a risk, but the chances are very remote. . . *Asthma,* per se, is not affected by altitude or hypoxia, though any patient who may be notably affected by apprehension should avoid air-travel. . . *Cardiac patients* who are free of symptoms or decompensation are probably quite safe, though airlines are not very happy with coronary and angina cases. There is no contraindication, other than psychic, to uncomplicated cases of hypertension.

The *chronic pulmonary diseases* must be subdivided for discussion. Individuals with emphysema may fly if they have no dyspnea on exertion. In general, any bodily lesion which might be acutely worsened by hypoxemia is better off on the ground. . . *Space-filling lesions* may provide a reason for not flying if the patient is dyspneic on exertion or if the lesion is acute and unstable (e. g., tuberculosis with a tendency to bleed or obstruct a bronchus). *Collapse-therapy,* composed of solid materials such as wax and oil, or produced by a thoracoplasty or phrenic operation, is also safe if symptom-free during exercise. Pleural fibrosis has the same limitation. . . Patients with *pneumothorax or pneumoperitoneum* are additionally vulnerable, in that the air expands in the low pressures of high altitudes. Air increases 15% in volume at 4,000 feet, about 50% at 10,000 feet, and about 100% at 16,000 feet. If the air-containing space cannot be enlarged by the expanding air without hazard of pain, perforation, or pressure, the volume and/or pressure of air should be decreased by aspiration before the patient is allowed to fly.

The prevention of motion-sickness has been recently mentioned in ARIZONA MEDICINE (September 1948, p. 83), and the hyoscine and barbiturate drugs, plus reassurance, offer a high degree of protection. Most drugs must be prescribed, but are available in proprietory forms (Vasano, Donnatol, the revised Mother Sill's, etc.).

All in all, a considerable basis of information exists concerning the medical aspects of air-travel, and a remarkable latitude is present in the freedom with which most sick people may be allowed to fly under the modern flight conditions. It is fortunate alike for the patients, the physicians, and Arizona.

W. H. O., Jr.

The American College of Physicians

The thirtieth annual session of the American College of Physicians was held at the Waldorf Astoria Hotel in New York City from March 28 to April 1st. The meeting was immediately preceded by the International Communist group known as the Cultural and Scientific Conference for World Peace. Registrations for the meeting began on the final day of the above conference. So it was necessary for Fellows to wend their way through heavy picket lines which surrounded the hotel on account of the Communist meeting. It might be added that very little of a scientific or cultural nature emanated from their conference to inspire the medical meeting which was to follow.

Highlights of the meeting are as follows:

TREATMENT OF SYPHILIS—

1. At the present time penicillin is the drug of choice in all forms and stages.
2. In early syphilis bismuth and arsenicals are out the window. As antiquated as the old mercury treatment.
3. Routine procedure suggested is one injection of 300,000 units procaine penicillin daily or every other day until 6 million units have been administrated.
4. Only time will tell the effect of Penicillin on latent syphilis. It may have little effect on changing the positive Wassermann, but this may not be important.
5. Penicillin is 100% effective in treatment of prenatal syphilis.
6. In neuro-syphilis penicillin and fever therapy seems the best procedure.
7. Failures run as high as 15% or 20%. Nothing certain as yet about the effect of re-treatment.

LOWER NEPHRON NEPHROSIS—

1. Caused by renal ischemia.
2. Complete recovery can be expected unless the ischemia is too prolonged.
3. One of the common causes today is incompatible blood given in transfusion, and the mortality runs as high as 50%.
4. Seems advisable to keep fluid intake low. Large amounts of fluid intake do not promote diuresis. 400-500 c.c. daily may be sufficient.
5. Excellent results by use of artificial kidney.

DIAGNOSIS OF CIRRHOSIS OF LIVER—

1. High per cent retention of Bromsulphthalein after 30 minutes.
2. Positive Cephalin-Flocculation test.
3. Increased prothrombin time.
4. Inverted albumin-globulin ratio.

TREATMENT OF OSTEOPOROSIS — Both Senile and post-menopausal

1. Administration of both Estrogen and Androgen at the same time.
2. Vitamin D in alcohol solvent instead of oil.
3. Calcium.
4. Dilute HCL if it is absent from the stomach.

EOSINOPHILIC GRANULOMA—

1. Treatment is X-ray.

MULTIPLE MYELOMA—

1. Pain is relieved by stilbamamine.

ARTHRITIS—

1. About 15% are dramatically relieved by climatic conditions.
2. Important things in management are adequate food and blood transfusion as body builders.
3. Prevention of deformities and limitation of exercise, i. e., do not produce fatigue by excessive exercise or manipulation.
4. If gold therapy is found effective, a maintenance dose of 50 mg. every three or four weeks should be continued. It seems to prevent relapses.

PREFRONTAL LABOTOMY IN MENTAL ILLNESS—

1. Results: 25% good - 25% fair - 50% poor.
2. Mortality ranges from 1.5% to 6%.

PHEOCHROMOCYTOMA—

1. Diagnosis made by use of anti-epinephrin drugs.

BLASTOMYCOSIS—

1. Be certain to de-sensitize patients against iodides before giving therapeutic dosage.

MALE CLIMATERIC—

1. Unlikely that it occurs during any limited space of time.

MALIGNANCY OF UTERUS AND BREASTS—

1. If at least five years beyond age of menopause, estrogen may produce excellent results in relieving symptoms.

NEPHROLITHIASIS—

1. About 50% have recurrences.

RARE OPERATIONS—

1. Amputation of left auricular appendage to prevent embolic accidents.
2. Recurrent Heart Failure due to pericardial effusion following Thyroidectomy. Cured by producing pleural-pericardial window.

An unusual feature of the meeting was that while one could visit clinics arranged at the large New York Hospitals, many of the hospital staffs brought their clinic patients to the Waldorf Hotel, making it unnecessary to even leave the hotel.

Those attending from Arizona were:

Leslie R. Kober, Phoenix, Governor of this District; W. Paul Holbrook, Tueson; Joseph C. Ehrlich, Phoenix; Frank J. Milloy, Phoenix.

Associate members from Arizona who were elected to Fellowship in the College were:

Leslie B. Smith, Phoenix; H. W. Caldwell, Phoenix; Stuart Sanger, Tueson.

The 1950 meeting will be held in Boston.

F. J. M.

State of Arizona
House of Representatives
Nineteenth Legislature
Regular Session

CHAPTER 42

HOUSE BILL NO. 82

AN ACT

RELATING TO THE PRACTICE OF MEDICINE AND SURGERY; AMENDING SECTIONS 67-1101 TO 67-1109 INCLUSIVE, ARIZONA CODE OF 1939, AND AMENDING ARTICLE 11, CHAPTER 67, ARIZONA CODE OF 1939, BY ADDING SECTION 67-1108a.

Be it Enacted by the Legislature of the State of Arizona:

Section 1. Sec. 67-1101, Arizona Code of 1939, is amended to read:

67-1101. *Board of medical examiners.* (a) Upon the taking effect of this Act the governor shall appoint a board of medical examiners consisting of five members, no two of whom shall be from the same county, from a list of not less than fifteen names submitted by the Arizona state medical association. Two of the persons so appointed shall hold office until the first day of July, 1952, and three shall hold office until the first day of July, 1953. Thereafter appointments shall be made by the governor for a term of three years, from a list of at least three names for each vacancy to be filled to be submitted by the Arizona state medical association. A member shall be eligible for reappointment for one additional term only. Each appointee shall: 1. have

resided in the state not less than three years next preceding his appointment; 2. be a licensed practitioner of medicine and surgery in the state and engaged in the active practice of his profession not less than three years. No professor, instructor, or other person in any manner connected with, or financially interested in, any college or school of medicine and surgery shall be appointed.

(b) The board shall elect from among its members a president, a vice-president, and a second vice-president, and shall appoint a secretary-treasurer, who need not be a member of the board. All such officers shall hold their respective positions during the pleasure of the board. Regular meetings shall be held at the office of the board on the third Tuesday of January, April, July and October of each year. The board may adopt rules and regulations, and shall keep a record of all proceedings. Any member may administer oaths and take evidence in any matter cognizable by the board. The board shall fix the salary of the secretary-treasurer. Board members shall receive twenty-five ($25.00) for each day of actual service in the business of the board, and reimbursement for their actual expenses in connection therewith. A member of the board may, upon notice and hearing, be removed by the governor for continued neglect of duty, incompetence, or unprofessional or dishonorable conduct. Appointment to fill a vacancy occasioned otherwise than by expiration of term shall be for the unexpired portion thereof, from a list of at least three names for each vacancy to be filled, to be submitted by the Arizona state medical association.

(c) In the case of all appointments to be made by the governor pursuant to this section, the governor may require the submission by the Arizona state medical association of such additional list of recommended board members as he may deem expedient.

Sec. 2. Section 67-1102, Arizona Code of 1939, is amended to read:

67-1102. *Practice of medicine and surgery.* (a) A person shall be regarded as practicing medicine and surgery, or either, who, by any indication or statement, claims his ability or willingness to, or does, diagnosticate or prognosticate any human ills, real or imaginary, or claims his ability or willingness to, or does, prescribe or administer any medicine, treatment or practice, or performs any operation, manipulation, or application for compensation unless it is in the practice of dentistry, pharmacy, osteopathy, chiropractics, chiropody, or naturopathy, or in the business of opticians or of vendors of dental or surgical instruments, apparatus and appliances.

(b) The name "physician," "surgeon," "physician and surgeon," or similar title, shall be used to designate a doctor of medicine and surgery, or either, who shall affix the initials M. D. to his name whenever used in a professional capacity. Any person using the name "physician," "surgeon," "physician and surgeon," or any other title or abbreviation to indicate or to induce others to believe that he is engaged in the treatment or diagnosis of the diseases, injuries, or defects of human beings, shall affix suitable words and abbreviations to his name, whenever used on signs or displays, clearly designating the particular type of practice for which such person is licensed to practice. Any person failing to so identify his practice shall be guilty of a misdemeanor.

Sec. 3. Section 67-1103, Arizona Code of 1939, is amended to read:

67-1103. *Certificates to practice.* (a) Three forms of certificates to practice medicine and surgery shall be issued by the board of medical examiners, under the seal thereof, and signed by a majority of members: 1. a certificate to practice as authorized by examination; 2. a reciprocity certificate, and, 3. a temporary license or permit to practice medicine and surgery in the event of an emergency.

(b) As used in this Act, an emergency shall be the inability of the local physicians and surgeons in any community to meet conditions affecting the public health that may arise suddenly and unexpectedly by reason of fire, flood, explosion, epidemic, pestilence, or like disaster, or through some unusual occurrence or condition which in the judgment of a majority of the board constitutes an emergency.

(c) A certificate issued upon examination or reciprocity, when recorded in the office of the county recorder as provided in this Act, shall constitute the holder thereof a duly licensed practitioner in accordance with the provisions of his certificate. To procure a license to practice medicine and surgery, the applicant shall be a citizen of the United States, or have declared his intention, in accordance with the laws of the United States, to become a citizen, but if such declarant fails to obtain admission to citizenship within the time prescribed by law, such license shall immediately become void and his certificate cancelled, and, shall file with the board, at least two weeks prior to a regular meeting thereof: 1. satisfactory testimonials of good moral character; 2. a diploma issued by a legally chartered college or school of medicine, the requirements of which, at the time of granting such diploma, were not less than those prescribed by the association of American medical colleges for that year, or certified proof of having possessed such a diploma, and, 3. proof that he has served an internship of at least one year in an accredited hospital. The applicant must also file a verified application, upon blanks furnished by the board, stating that he is the person named in such diploma; that he is the lawful holder thereof; that it was procured in the regular course of instruction and examination, without fraud or misrepresentation, and that at no time

has his license to practice medicine and surgery been revoked in any state or territory of the United States.

(d) The examination to practice medicine and surgery shall be conducted in the English language, shall be practical in character, and in whole or in part in writing on the following subjects: anatomy, histology, gynecology, pathology, bacteriology, chemistry and toxicology, physiology, obstetrics, surgery, general diagnosis, hygiene, and such other subjects pertaining to medicine and surgery as the board may determine. Examination in each subject shall consist of not less than ten questions, answers to which shall be marked upon a scale of zero to ten. An applicant must obtain not less than a general average of seventy-five (75) per cent, and not less than sixty (60) per cent in any one subject. Applicants who can show five (5) years of reputable practice shall be allowed a credit of five (5) per cent on the general average, and five (5) per cent additional for each subsequent ten (10) years of reputable practice, but must receive not less than fifty (50) per cent on any one subject. If an applicant fails in not more than two subjects, he may be re-examined in the subject or subjects in which he failed at any subsequent examination within one year without further application or payment of additional examination fee and, upon attaining the proper credit therein, shall receive a certificate to practice medicine and surgery as in this Act provided. The examination papers shall form a part of the records of the board and shall be kept on file by the secretary-treasurer for at least one year after such examinations. In the event of oral examinations, questions and answers shall be taken verbatim by a stenographer or steno-typist and a transcript thereof made and duly filed in accordance with the provisions for the filing of papers for written examinations. In the written examinations, the applicants shall be known and designated by numbers only, and the names attached to the numbers shall be kept secret until after the board has finally passed upon the applications. The secretary-treasurer of the board shall not participate as an examiner in the examinations.

(e) An applicant for a certificate to practice medicine and surgery may be granted a reciprocity certificate without such examination, if he shall file with the board the testimonials, diploma and application, and a certificate or license to practice medicine and surgery, or certified evidence of the same, issued by any state or territory in the United States where the requirements are at least equal to those set forth in this Act. The board shall have the right to give an oral examination to an applicant for a reciprocity certificate whose graduation from a college or school of medicine was five years or more prior to the filing of his application. An applicant may be issued a reciprocity certificate to practice medicine and surgery upon filing a certificate or license or a diploma issued by the national board of medical examiners, or certified evidence thereof, and, except in the case of an applicant who files a diploma of the national board of medical examiners or evidence thereof, certified evidence that at the time of the issuance of such certificate or license he was an ethical practitioner and had been engaged in the active practice of medicine and surgery for not less than three years. An applicant for a reciprocity certificate or license, who shall otherwise comply with the provisions of this Act, and who shall file with the board proper evidence of honorable discharge from any branch of the military service of the United States, shall not be required to furnish character testimonials or file the certificate of three years of ethical practice.

(f) Whenever the services of an applicant are needed as an emergency in any community, the board may grant to a graduate of any college or school of medicine and surgery approved by the association of American medical colleges, a temporary license or permit to practice medicine and surgery in such community. A temporary permit or license shall be valid only until the next regular meeting of the board, when the applicant must appear for regular examination. One renewal of a temporary license may be granted provided the renewal immediately follows the quarter for which the temporary license was issued. Only one temporary license and one renewal shall be issued to any person. A temporary license shall not be filed with the county recorder.

(g) A graduate of a college or school of medicine of any foreign country, the requirements of which were in the opinion of the board, at the time of such graduation, equal to the requirements prescribed by this Act, may, at the discretion of the board, be examined for a license and issued a certificate to practice medicine and surgery.

(h) The board shall keep a register of applicants and the result of each examination.

Sec. 4. Section 67-1104, Arizona Code of 1939, is amended to read:

67-1104. *Fees.* The board shall charge the following fees:

1. For application for certification by examination, twenty-five dollars ($25.00), of which fifteen dollars ($15.00) shall be returned to the applicant in the event his credentials are found insufficient or he withdraws his application before taking the examination.

2. For a reciprocity certificate, one hundred dollars ($100.00), of which seventy-five dollars ($75.00) shall be returned to the applicant in the event his credentials are found insufficient or he withdraws his application before a certificate is issued.

Woman's Auxiliary to the Arizona Medical Association

ANNUAL MEETING

Tucson

May 9 - 10 - 11, 1949

Headquarters — Hotel Pioneer

Pima Auxiliary Hostess Chairman.....Mrs. Donald Lewis
2548 E. Fourth, Tucson

State Auxiliary Chairman.....Mrs. Joseph Kinkade
335 S. Country Club, Tucson

Monday May 9.....Pre Convention State Board Dinner - 6:30 P. M.

Tuesday May 10.....General Business Session - 10 A. M.
Luncheon - Studio Patio, Temple of Music - 1 P. M.
Dinner Dance - Pioneer Hotel - 7 P. M.

Wednesday May 11.....General Business Session - 10 A. M.
Luncheon - El Rio Country Club - 1 P. M.

3. For a temporary license or permit, twenty-five dollars ($25.00).

Sec. 5. Section 67-1105, Arizona Code of 1939, is amended to read:

67-1105. *Recording certificate.* A certificate to practice medicine and surgery shall be recorded in the office of the county recorder of the county in which the licensee is practicing his profession, and, on any change of residence, of the county to which he shall have removed. The county recorder shall keep a complete list of certificates to practice medicine and surgery recorder by him, with the date on which each is placed of record.

Sec. 6. Section 67-1106, Arizona Code of 1939, is amended to read:

67-1106. *Refusal of certificate for unprofessional conduct.* (a) The board shall refuse a certificate to any applicant guilty of unprofessional conduct, but before such refusal the applicant shall be cited upon a sworn complaint filed with the board, charging the applicant with having been guilty of unprofessional conduct, and setting forth the particular acts constituting such conduct. The citation shall be returnable at a meeting of the board not less than thirty (30) days thereafter and the board shall notify the applicant when and where the matter will be heard, the conduct with which the applicant is charged, and that the applicant shall file his written answer, under oath, within twenty (20) days after service of said citation, or default will be taken against him, and his application refused. The citation and subpoenas for witnesses, issued by the secretary-treasurer, shall be served as provided by law for the service of subpoenas. If any person refuses to obey a subpoena such refusal shall be certified by the board to the superior court of the county in which the service was had, and proceedings had as for contempt. If the charges on their face be deemed sufficient by the board, and issue be joined thereon by answer, the board shall determine the charges upon oral testimony or depositions. No certificate shall be refused on the ground of unprofessional conduct unless the applicant has been guilty of such conduct within two years next preceding his application.

(b) When a holder of a certificate is guilty of unprofessional conduct, or a certificate has been procured by fraud or misrepresentation, or issued by mistake, the board shall revoke the same after citation and hearing thereon. The secretary-treasurer shall certify the fact of revocation, under the seal of the board, to the county recorder of the county in which the revoked certificate is recorded, and the recorder shall indorse upon the margin or across the face of the recordation of such certificate the fact of its revocation. Upon the revocation of a certificate the holder thereof shall be disqualified from practicing medicine and surgery.

(c) For the purposes of this Act "unprofessional conduct" includes: 1. procuring, or aiding or abetting in procuring, a criminal abortion; 2. wilful betrayal of a professional secret; 3. advertising of medical business which is intended, or has a tendency, to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to the public morals or safety; 4. advertising of any medicine or of any means whereby the monthly periods of women can be regulated or the menses reestablished if suppressed; 5. conviction of an offense involving moral turpitude, in which case the record of such conviction shall be conclusive evidence 6. giving or receiving rebates; 7. habitual intemperance in the use of alcohol or narcotic drugs, and, 8. personation of another licensed practitioner of medicine and surgery of a like or different name.

Sec. 7. Section 67-1107, Arizona Code of 1939, is amended to read:

67-1107. *Penal provisions.* (a) Any person holding a certificate to practice medicine and surgery who shall practice without first having filed his certificate to practice is guilty of a misdemeanor.

(b) Any person who practices, or attempts to practice medicine or surgery, without having a valid recorded license to so practice issued by the state board of medical examiners, is guilty of a felony.

(c) Any person who files or attempts to file for record, a license issued to another, claiming himself to be the person entitled to the same, is guilty of a felony and upon conviction shall be punished as provided by law for the crime of forgery.

(d) Any person who assumes to act as a member of the state board of medical examiners, who is not a member thereof, and who signs, issues or seals a license authorizing a person to practice medicine or surgery as provided in this Act, is guilty of a felony, and upon conviction shall be imprisoned in the state prison not more than five (5) years.

(e) The attorney general, a county attorney, the state board of medical examiners, or any citizen of a county where any person shall engage in the practice of medicine or surgery, defined in this Act, without having first obtained a license so to do, may, in accordance with the laws governing injunctions, maintain in the name of the state an action in the county in which the offense is committed to enjoin such person from so engaging until a license therefor be secured. Any person so enjoined who violates the injunction shall be punished as for contempt of court. Such injunction shall not relieve a person practicing medicine or surgery without a license from criminal prosecution, but shall be in addition to any remedy provided for the criminal prosecution of the offender. In charging any person, in a complaint for injunction, or in an affidavit, information or indictment, with a

violation of this Act by practicing medicine or surgery without a license, it shall be sufficient to charge that he did upon a certain day and in a certain county engage in the practice of medicine or surgery, he not having any license so to do, without averring any further or more particular facts concerning the same.

Sec. 8. Section 67-1108, Arizona Code of 1939, is amended to read:

67-1108. *Bureau of license.* (a) Any person practicing medicine or surgery under the provisions of this Act shall pay to the board of medical examiners on or before the first day of January of each year after a license is issued a renewal fee of five dollars ($5.00). Not less than thirty (30) days prior to such date the secretary-treasurer shall mail to every practitioner of medicine and surgery in the state a notice requiring the payment of the renewal fee, which notice shall quote the provisions of this subsection. Not later than the tenth day of January a second notice shall be mailed to any such person who fails to pay the license renewal fee by the first day of January, and if the renewal fee is not paid by the first day of February, a penalty of twenty-five dollars ($25.00) shall be added. A delinquent licensee who fails to pay such fee and penalty before the first day of May shall be cited to appear before the board at a date certain, not less than ten (10) days from the date of the citation, and show cause why his license should not be revoked.

Sec. 9. Article 11, chapter 67, Arizona Code of 1939, is amended by adding section 67-1108a, to read:

67-1108a. *Disposal of moneys.* Ten (10) per cent of all moneys collected under the provisions of this Act shall be deposited in the state general fund, and ninety (90) per cent shall be placed by the state treasurer in a fund to be known as the board of medical examiners fund. All moneys in the board of medical examiners fund are appropriated for the use of the board of medical examiners for the payment of salaries, office and travel expense, and otherwise in carrying out the purposes of this Act. Any unexpended and unencumbered balance of funds remaining in the board of medical examiners fund at the end of a fiscal year shall not revert to the general fund.

Sec. 10. Section 67-1109, Arizona Code of 1939, is amended to read:

67-1109. *Exceptions to application.* Nothing in this Act shall inhibit: 1. service in an emergency; 2. the domestic administration of family remedies, nor, 3. the practice of religion or treatment by prayer exclusively; nor shall it apply to any commissioned medical officer in the military service of the United States or public health service, in the discharge of his official duties, nor to any licensed practitioner from another state when in actual consultation with a licensed practitioner of medicine and surgery of this state.

Sec. 11. *Emergency.* To preserve the public peace, health, and safety it is necessary that this Act become immediately operative. It is therefore declared to be an emergency measure, to take effect as provided by law.

Approved by the Governor—March 17, 1949.

Filed in the Office of the Secretary of State—March 17, 1949.

PERSONAL NOTES

DR. LEWIS H. HOWARD announces the start of **THE FOURTH ANNUAL SCHOOL FOR FOOD-HANDLERS.** About 60 Pima County food-handlers will attend the lectures, which are in charge of Dr. Howard, the health officer, and Otto Fritz, the county sanitarian. Pertinent subjects will be covered, with colored photographs as illustrations.

A new privately operated maternity hospital, **"THE STORK'S NEST,"** has been opened at 2834 East Grant Road in Tucson. The manager, Mrs. Ruby Tappero, has constructed facilities under the direction of state and federal authorities, and they will be supervised by the American Hospital Association. The staff will be "open," and there is room for 21 patients.

DR. MORETON H. AXLINE recently died in Tucson at the age of 74 years. Since retiring from the staff of the old Veterans Hospital, Dr. Axline has been living in Newport Ritchie, Florida.

MR. CLYDE W. FOX, Administrator of the **TUCSON MEDICAL CENTER,** reports that the hospital is now approved for residency-training in medicine, surgery, and radiology. It is also accredited for internship, and three interns will begin service in July, 1949. The number of patient days increased 22% in the year 1947-48, and 21 more beds have been added in February, 1949. Seventy per cent of the 296 employees now remain longer than a year.

THE INTERNATIONAL CONGRESS ON RHEUMATIC DISEASES will meet at the Waldorf-Astoria Hotel in New York, May 30 to June 3rd. This is the first time that the society has convened in the United States. The American and New York Rheumatism Associations will be co-hosts. **DR. EDWARD BOLAND** of Los Angeles, who recently spoke in Arizona, is chairman. A huge enrollment has already been filed.

The Pima County Medical Society joined with the staff of St. Mary's Hospital and Sanatorium on March 15th to hear **DR. CHARLES E. SMITH,** Professor of Public Health and Preventive Medicine at Stanford University. Dr. Smith's topic was "The Diagnosis of Coccidioidal Infection."

The Veterans Administration Hospitals continue to present lectures by outstanding specialists for their staffs and guests. Between March 2nd and April 1st **DR. BERT COTTON** of Beverly Hills spoke on "Thoracic Surgical Problems," **DR. WALTER SCHALLER** on "Huntington's Chorea," **DR. GEORGE HARTMAN** of Tucson on "Mononucleosis," **DR. KARL MENNINGER** of Kansas on Neuropsychiatry, **DR. CHARLES SMITH** of San Francisco on "Diagnosis of Coccidioidal Infection," **DR. EDWARD HAYS** of Monrovia, California on "The Non-Surgical Treatment of Tuberculosis," **DR. KENNETH BAKER** on "Some Recent Advances in Dermatologic Therapy," **DR. TRAVIS WINSOR** on "Electrocardiography and Plethysmography," and **DR. WALTMAN WALTERS** of the Mayo Clinic on "The Use of Vagotomy in Treatment of Peptic Ulcer." **DR. GURTH CARPENTER** of Beverly Hills addressed the group on "Hemotology" in February.

DR. P. C. WELTON, who has been in general practice in Tucson since 1942, is now returned to his former position as medical director of the Buena Vista Sanatorium in Wabasha, Minnesota.

THE ARIZONA HOSPITAL ASSOCIATION held its annual meeting in Phoenix in early February. **EVERETT W. JONES,** a nationally known expert on hospital administration and vice-president of the Modern Hospital Publishing Co., was the principal speaker. Among other speakers was **DR. F. J. BEAN** of the Pima County Hospital and **A. E. AITA,** president of the Association of Western Hospitals.

DR. DELMAR MOCK, councilman of Patagonia, is one of the city officials who are attempting to obtain for Patagonia a larger portion of the funds recently voted in a Santa Cruz County referendum. The town is now scheduled for an emergency hospital, while the main hospital is to be located in Nogales.

DR. BENSON BLOOM, chairman of the Arizona State Board of Health, has been active in attempting to secure consideration and passage of the bill for expansion of the health department services.

DR. SAMUEL S. ALSHULER, chief of professional services at the Tucson Veterans Hospital, acted as moderator of a symposium on arthritis. Participants included staff members and Tucson specialists.

DR. JOHN J. RUPP of the Tucson Medical Center presented a paper on "Spinal Anesthetics in Obstetrics" at the meeting of the Arizona State Society of Anesthesiologists at Phoenix in February.

DR. JAMES E. PERKINS of New York City, new managing director of the National Tuberculosis Association, will address the annual meeting

of the Arizona Tuberculosis and Health Association at the Santa Rita Hotel in Tucson, April 2nd.

The March **STAFF-MEETING OF THE TUCSON MEDICAL CENTER** consisted of papers on "Healed Periarteritis Nodosum" by **DR. HUGH THOMPSON,** discussed by **DR. O. J. FARNESS;** "A Case of Gout" by **DR. STUART WESTFALL,** discussed by **DR. C. L. ROBBINS;** and "The Rationale and Results of Therapy of Status Asthmaticus with Ether Anaesthesia" by **DR. JOHN RUPP,** discussed by **DRS. W. B. STEEN** and **GEORGE BOONE.**

DR. HENRY G. WILLIAMS was elected President-Elect of the Maricopa County Medical Society at its February meeting.

The following were elected to office in the Gila County Medical Society for 1949: **DR. A. J. BOSSE,** Globe, President; **DR. N. O. WHEELER,** Globe, Vice-President; **DR. N. D. BRAYTON,** Miami, Secretary.

Book Reviews

PSYCHODYNAMICS AND THE ALLERGIC PATIENT. Harold A. Abramson, M.D., F.A.C.A. Associate Physician for Allergy, the Mount Sinai Hospital, New York, N. Y.; Consulting Physician for Allergy, Sea View Hospital, Staten Island, N. Y.; Assistant Professor of Physiology, Columbia University, New York, N. Y. 81 Pp. with illustrations. The Bruce Publishing Company, St. Paul and Minneapolis, 1948.

On June 8, 1947, during its third annual meeting, the American College of Allergists arranged a panel discussion on the subject "Psychodynamics and the Allergic Patient." This small volume is the written record of the panel discussion. The discussants included a number of allergists and psychiatrists, namely: Harold A. Abramson, Rudolf L. Baer, Ethan Allan Brown, Hal M. Davison, O. Spurgeon English, Frank Fremont-Smith, J. A. P. Millet, M. Murray Peshkin, Homer E. Prince, Sandar Rado, and Edward Weiss.

Dr. Abramson opened the program with a paper in which he reviewed the history of the subject briefly in a chapter entitled "Psychosomatic Aspects of Hay Fever and Asthma Prior to 1900." He then discussed the more recent views on the subject and described the case records of a number of patients. Finally he outlined his own opinions as to what should be done to help solve the problems involved and to train young allergists sufficiently in psychodynamics.

After the reading of Dr. Abramson's paper the discussants gave their ideas as to the relationship between allergic diseases and psychodynamics. The only general agreement was that further study of the subject is advisable. Only one discussant was staunch in his opinion that psychodynamics play a very small part, if any, in allergic diseases.

Although the book is interesting and well worth reading, it is the opinion of the reviewer that most readers will continue to hold the same opinions after reading it that they held before.

OBITUARY

Lewis A. W. Burtch, M. D., died in Phoenix, January 13, 1949.

Dr. Burtch was born July 16, 1875, in Morrison, Illinois. He graduated from Rush Medical College, Chicago, in 1897. After a short period of study under a preceptor in Morrison he came to Arizona late in 1897 and settled in Clifton, where at various times he served as superintendent of the Greenlee County Board of Health and of the Greenlee County Hospital. He moved to Phoenix in 1923. In recent years he limited his practice to anesthesiology and became a member of the American Society of Anesthesiology, and the International Society for Research in Anesthesia.

Dr. Burtch was a member of the Maricopa County Medical Society, the Arizona Medical Association, and the American Medical Association. In 1948 he was elected to membership in the Fifty Year Club of the Arizona Medical Association in honor of his service of more than half a century as a practicing physician.

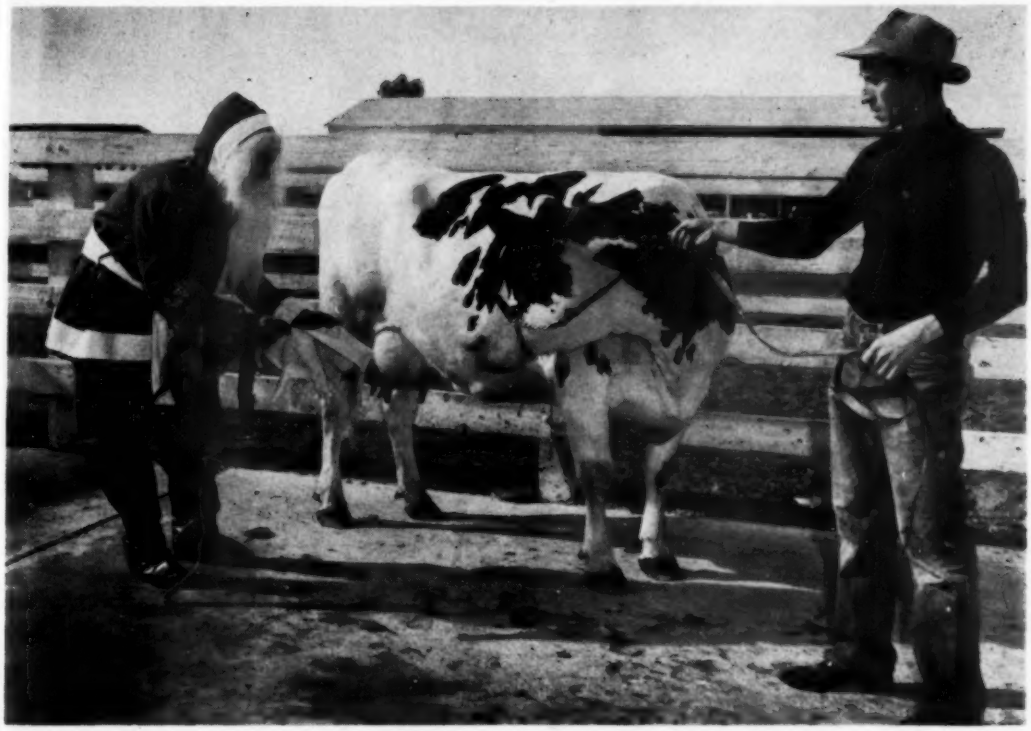
OBITUARY

Louis J. Saxe, M. D., died in Phoenix December 13, 1948.

Dr. Saxe was born in Cleveland, Ohio, in 1908. He graduated from the Duke University Medical School in 1934. He served as DuPont Research Fellow in Neurology at the University of Virginia (1936) and as a member of the Staff of the Colorado Psychopathic Hospital. He came to Arizona in 1938 as a staff physician at the Arizona State Hospital, becoming superintendent of that institution in 1939. In 1941, after leaving the state hospital he became staff physician at the Maricopa County Hospital. Failing health caused him to withdraw from active practice about three years ago.

Dr. Saxe was a member of the Maricopa County Medical Society and the Arizona Medical Association, a fellow of the American Medical Association, a Diplomate of the National Board of Medical Examiners, a Diplomate of the American Board of Neurology and Psychiatry and a member of the American Psychiatric Association.

Doctor, when you peruse the advertising pages in our journal, remember this: all ads are carefully screened—the items, services, and messages presented are committee-accepted. Our standards are of the highest. The advertisers like our journal—that's why they selected it for use in their promotional program. They seek your patronage and your response encourages continued use of our publication. In turn, the advertisers' patronage helps us to produce a journal that is second to none in our state. When you send inquiries, tell them that you read their advertisement in the ARIZONA MEDICINE.



Lillybelle gets a Christmas present—a "COW BRA." Prize cow at the State College Dairy at Tempe receives from Santa a present of great importance to the dairy industry and to public health.

"Cow Bra" Creates World-wide Interest

The "COW BRA", invention of a retired Arizona doctor, has attracted world-wide attention, publicity, and interest.

Following the first "story" about the "COW BRA" in Time Magazine last October, a regular rash of publicity broke out all over. Clippings poured in from every part of the United States and from Europe and South America.

Inquiries poured in from everywhere as well. By letter, by cable, by radiogram, and in person, manufacturers, distributors and sales organizations wanted to know all about the "COW BRA."

Meantime tests going on under the supervision of competent Veterinarians, use of the "COW BRA" in some of the best dairy herds from California to Massachusetts, from Wisconsin to Texas, has been accumulating more and more evidence that the "COW BRA" actually increases milk production, prevents injuries, decreases the incidence of Mastitis and other infections, and thus becomes a valuable contribution to milk production and to the public health.

PROGRAM

Fifty-Eighth Annual Meeting
ARIZONA MEDICAL ASSOCIATION

TUCSON, ARIZONA
MAY 8-11, 1949

HOTEL PIONEER - HEADQUARTERS

SUNDAY, MAY 8, 1949

Evening—Council Meeting.

MONDAY, MAY 9, 1949

Morning—House of Delegates.

Afternoon—

1. Opening Exercises.
2. Presidential Address.
3. "Recent Developments in the Practice of Pediatrics"
   J. H. Ebbs, M. D., Toronto, Ontario.
4. "The Principles of Salt and Water Metabolism"
   Raymond J. Jennett, M. D., Phoenix, Ariz.
5. "The Use of Quinidine"
   Joseph C. Ehrlich, M. D., Phoenix, Ariz.

Evening—

1. "The Use and Abuse of the Low-Sodium Diet in Hypertension"
   Wm. H. Bates, M. D., Cottonwood, Ariz.
2. "The Use of Anti-Coagulants in Thrombo-Embolic Diseases"
   Irving S. Wright, M. D., New York City.
3. "Diagnosis and Differential Diagnosis of Poliomyelitis"
   Winona Campbell, M. D., Denver, Colo.
4. "Cholecystitis"
   Willis D. Gatch, M. D., Indianapolis, Ind.

TUESDAY, MAY 10, 1949

Morning—

Arizona Chapter of American College of Chest Physicians.

1. Thomas B. Wiper, M. D., San Francisco, California. 2 Papers.
2. Reginald Smart, M. D., Los Angeles, Calif. 2 Papers.

Afternoon—

1. "Surgical Pancreatitis"
   Howard D. Cogswell, M. D., Tucson, Ariz.
2. "Modern Treatment of Coronary Thrombosis"
   Irving S. Wright, M. D., New York City.
3. "Dibutolene, a Useful Anti-Spasmodic"
   Leo Kent, M. D., Tucson, Arizona.
4. "Genital Abnormalities"
   Arthur Cecil, M. D., Los Angeles, Calif.

Evening—Banquet, Pioneer Hotel

WEDNESDAY, MAY 11, 1949

Morning—House of Delegates.

Afternoon—Scientific Session.

1. "Radiation and the Geiger Counter"
   Geo. G. McKhann, R. Lee Foster, Palmer Dysart, M. D.'s, Phoenix, Arizona.
2. Clinical Film on Poliomyelitis
   Winona Campbell, M. D., Denver, Colo.
3. "Masked Collagen Disease"
   Charles A. L. Stephens and W. Paul Holbrook, M. D.'s, Tucson, Arizona.
4. "X-ray"
   Maurice Richter, M. D., Phoenix, Ariz.

Evening—Scientific Session.

1. "Doctors, Parents and Psychosomatic Disease"
   A. K. Duncan, M. D., Douglas, Arizona.
2. "Systemic Effects of Bowel Obstruction"
   Willis D. Gatch, M. D., Indianapolis, Ind.
3. "Surgical Treatment of Pulmonary Coccidioidomycosis"
   D. W. Melick, M. D., Phoenix, Arizona.
4. "Lower Nephron Nephrosis"
   Louis B. Baldwin, M. D., Phoenix, Ariz.

Entertainment:

Arthur J. Present, M. D., Chairman
23 E. Ochoa, Tucson

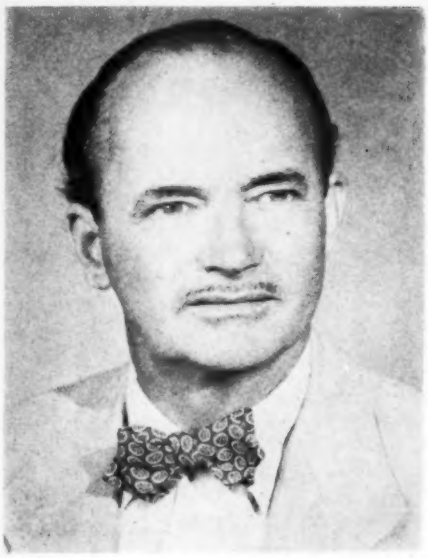
Golf—Sunday, May 8, 2:00 P. M.
R. E. Hastings, M. D., Chairman

Other Features—See Annual Meeting Circular soon to be released to the Membership.

Hotel Reservations:

W. R. Manning, M. D., Chairman
620 North Country Club Road, Tucson

BIOGRAPHICAL SKETCH



Robert Stanley Flinn, M. D.
President-Elect

Robert Stanley Flinn was born at Wallace, Nova Scotia, Canada, July 19, 1897. His father, the village physician, having developed tuberculosis, the family moved to Kingman, Arizona in 1898 and settled permanently in Prescott in 1900. Following graduation from the local high school, Dr. Flinn served with the Canadian Expeditionary Force and the British Royal Air Force in France and Belgium before entering Harvard College in 1919. He was graduated from Harvard College in 1923 and from Harvard Medical School in 1927. Following an interneship at the Royal Victoria Hospital in Montreal, Dr. Flinn returned to Arizona and became associated with his father, Dr. John W. Flinn, who for many years was the medical director of Pamsetgaaf Sanatorium in Prescott. In 1930, Dr. Flinn moved to Phoenix where he has since engaged himself in the practice of Internal Medicine with emphasis on the treatment of cardiac conditions.

He is a member of the American Heart Association; a Fellow of the American College of Physicians and of the American College of Chest Physicians, and has studied at the Trudeau School for Tuberculosis at Saranac Lake as well as the British Postgraduate Medical School in London and at the University of Vienna.

Dr. Flinn has served as president of the Maricopa County Medical Society. He has been a member of the Council of the Arizona Medical Association as Councilor for the Central District for two and a half terms. In taking the office of president of the state association he emulates his father who served in the same capacity in 1914—the only father and son team so honored by the profession in Arizona. He is keenly interested in teaching and has for a number of years conducted seminars in electrocardiography for the Internes in two Phoenix hospitals.

Dr. Flinn has numerous non-medical interests. He travels extensively; collects bookplates; plays tennis with vigor and abandon and, at the moment, is busily engaged in organizing a Wine and Food Society in Arizona.

PRESIDENTS AND SECRETARIES OF THE ASSOCIATION SINCE ITS ORGANIZATION

Year Elected	President	Secretary
		J. W. Green, Tucson
1892	J. A. Miller, Phoenix	L. D. Dameron, Phoenix
1893	H. A. Hughes, Phoenix	L. D. Dameron
1894	Ancil Martin, Phoenix	L. D. Dameron
1895	P. G. Cotter, Yuma	L. D. Dameron
1896	D. M. Purman, Phoenix	L. D. Dameron
1897	Chas. H. Jones, Tempe	O. E. Plath, Phoenix
1898	W. V. Whitmore, Tucson	O. E. Plath
1899	Win Wylie, Phoenix	Chas. H. Jones, Tempe
1900	T. B. Davis, Prescott	Chas. H. Jones
1901	H. W. Fenner, Tucson	Chas. H. Jones
1902	Wm. Duffield, Phoenix	Chas. H. Jones
1903	L. D. Dameron, Phoenix	John W. Foss, Phoenix
1904	W. H. Ward, Phoenix	John W. Foss
1905	J. W. Coleman, Jerome	John W. Foss
1906	O. E. Plath, Phoenix	John W. Foss
1907	A. R. Hickman, Douglas	John W. Foss
1908	A. W. Olcott, Tucson	John W. Flinn, Prescott
1909	R. N. Looney, Prescott	John W. Flinn
1910	John W. Foss, Phoenix	John W. Flinn
1911	Francis E. Shine, Bisbee	John W. Flinn
1912	John E. Bacon, Miami	W. W. Watkins, Phoenix
1913	Ira E. Huffman, Tucson	C. E. Yount, Prescott
1914	John W. Flinn, Prescott	C. E. Yount
1915	Roy E. Thomas, Phoenix	C. E. Yount
1916	Robt. Ferguson, Bisbee	C. E. Yount
1917	W. A. Holt, Globe	C. E. Yount
1918	W. Warner Watkins, Phoenix	C. E. Yount
1919	C. E. Yount, Prescott	D. F. Harbridge, Phoenix
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Woman's Auxiliary

Mrs. Donald B. Lewis

Mrs. Donald B. Lewis is the Convention chairman for the Woman's Auxiliary to the Pima County Medical Society. She and her able committee have been working hard to perfect plans for the entertainment of all doctors' wives in the state. The Pima County auxiliary cordially extend an invitation to all doctors' wives to attend the annual meeting in Tucson May 9-11. Besides Convention chairman, Mrs. Lewis is the President-Elect of Pima County Auxiliary.

Mrs. Joseph M. Kinkade

Mrs. Joseph M. Kinkade is the first State Convention Chairman the Woman's Auxiliary to the Arizona medical association has ever had. For the first time we will have a "liason officer" to help with convention arrangements, to act as master of ceremonies at our social events and to assist not only the state auxiliary president but the Medical Society's office.

Coming from Pima county, Mrs. Kinkade will have the added advantage of knowing all the convention plans. Although she has lived in Tucson only three years she has taken an active part in Auxiliary plans and is a progressive, thinking doctor's wife.

STATE CONVENTION IN TUCSON

Dinner for Board Members, Monday, May 10th, 6:00 P.M. Old Pueblo Club.

Luncheon at Studio Patio, Temple of Music and Art, Tuesday, May 11th, 1:00 P.M.

Luncheon at El Rio Golf and Country Club, Wednesday, May 12th, 1:00 P.M.

Mrs. Joseph M. Kinkade will be toastmistress at the luncheons.

The following are the convention chairmen of committees:

General Chairman—Mrs. Donald B. Lewis
Telephone—Mrs. A. N. Shoun
Transportation—Mrs. Louis Hirsch
Publicity—Mrs. B. B. Edwards
Hospitality—Mrs. Max Costin
Registration—Mrs. F. J. Lesemann
Luncheon—Mrs. Kenneth C. Baker, assisted by:
Mrs. W. R. Manning
Mrs. Clyde Flood
Mrs. Roy Hewitt

Gladys M. Edwards,
(Mrs. B. B.)

Cancer Control

Among the many endeavors being made to control cancer, education of the public has played an important role. Cancer education aims to correct popular superstitions and fallacies about the disease by teaching the lay public the actual facts about cancer. Another of its purposes is to dispel some of the fear and dread of cancer by showing that it is not always the hopeless disease it is popularly supposed to be, and that, in many instances it can be cured if detected and treated in time. The degree of curability depends upon the individual recognizing the presence of abnormal conditions which may indicate cancer. When early symptoms are presented to the physician, the physician has a greater opportunity of effecting a cure.

Therefore, it is highly important that the individual be exposed at an early age to authentic information so that he may grow up with this knowledge and so the word cancer will no longer be fearful to him. With knowledge cancer assumes proper proportion in the minds of the public as a curable disease.

The Arizona division, American Cancer Society works toward promoting the study of cancer in conjunction with public health problems program. It annually sponsors a state-wide contest, supplying educational materials toward developing any such contest which covers the subject of cancer. Currently, the contest "Seize Knowledge - Conquer Cancer" is being conducted in all high schools of the State of Arizona.

The State Headquarters of the Society is glad to work with organized groups in a study of cancer and will supply such materials as leaders guide or teachers manual, cancer statistics, references for further study and literature to distribute.

By mutual agreement with the Speaker's Bureau of the Arizona Medical Association the American Cancer Society can arrange for a speaker for an audience of at least 20 adults (in case of small audience the showing of a film is recommended). Arrangements for a speaker must be made one month in advance of the date of the meeting.

Films are available on a loan basis from the Arizona Division, American Cancer Society. "The Traitor Within," a 16 MM. animated color film with sound, is recommended for junior groups. "The Doctor Speaks His Mind," "Time Is Life," "Choose To Live," and "You Are the Switchman" are some of the films available for adult groups. Film should be requested a month in advance of time of showing.

The Arizona Division serves as a distribution agent of cancer literature, such as Cancer News, monthly, to individuals upon request; to groups, sufficient literature to supply those present; and to teachers, any number of pamphlets regarding cancer needed for their students and materials for the teacher in directing the study.

A five-weeks course on cancer education, under sponsorship of the Arizona Division is presented in the summer session at the Arizona State College at Tempe. (Further information will be supplied on request.)

The Arizona Division, American Cancer Society wishes to thank the Woman's Auxiliary to the Arizona Medical Association whose many members have done splendid work toward the furthering of an educational program on cancer in Arizona. Among those doing outstanding

work on this project are Mesdames J. D. Hamer of Phoenix, Theodore C. Harper of Globe, Charles Sechrist of Flagstaff, Hervey Faris of Tucson, Dan L. Mahoney of Tucson, Lawrence von Pohle of Chandler, Chester R. Swackhamer of Superior, Nelson D. Brayton of Miami, Broda O. Barnes of Kingman, Melvin L. Kent of Mesa and George B. Irvine of Tempe.

Five Year Progress Report

ARIZONA DIVISION, AMERICAN CANCER SOCIETY

In a recent report received from the Arizona Division, American Cancer Society, citing the achievements of cooperating organizations for that Society the Woman's Auxiliary to the Arizona Medical Association was acclaimed as the group most influential in helping to organize the educational program of the local Cancer Society.

Five years ago the Woman's Auxiliary to the Arizona Medical Association took as their State project the Cancer Program. Under the guidance of the Cancer Committee of the Arizona Medical Association, of which E. Payne Palmer, Sr., M. D. was chairman, an educational program was planned. The members of the Pathological and Radiological Section of the State Medical Association made an exhibit for the Cancer Committee of the Auxiliary to show throughout the State in conjunction with one rented from the American Cancer Society.

Through the efforts of the Educational Program, which was financed by the Auxiliary and the State Medical Association, sufficient public interest was developed that a State Division of the American Cancer Society could be formed.

Mrs. E. Payne Palmer, Sr.

In appreciation of the groundwork for the Cancer Educational Program laid by the Auxiliary, a Certificate of Award for distinguished service has been presented to the Auxiliary and two of the members have been commended for ten years of consecutive service. Mrs. E. Payne Palmer, Sr., of Phoenix, who served as the first Treasurer to the Society and is currently a member of the State Executive Board, and Mrs. James H. Allen of Prescott, who worked with Mrs. Palmer and was instrumental in developing the Cancer Program during her year as

Familiar Faces in the Cancer Program of the Woman's Auxiliary, American Medical Society

Left to Right: Mrs. Chester R. Swackhamer, Mrs. James R. Moore, Mrs. Charles A. Thomas, Mrs. Thomas A. Hartgraves, Mrs. E. Henry Running, Mrs. Edward M. Hayden, and Mrs. Hervey S. Faris.

Mrs. James H. Allen

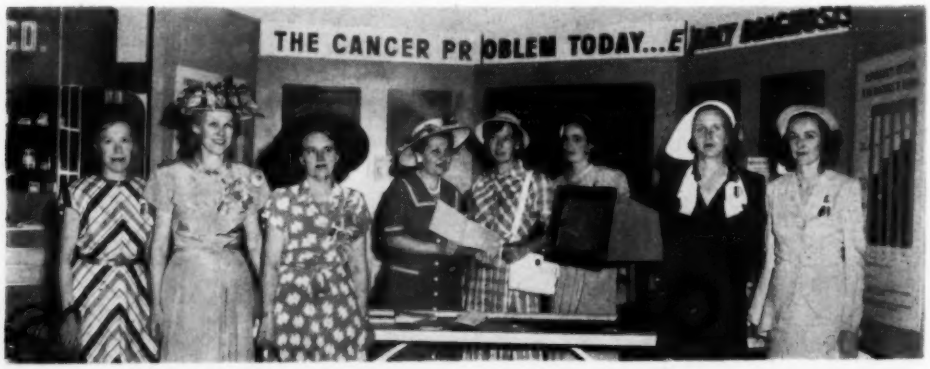
Mrs. Thomas A. Hartgraves

President of the Woman's Auxiliary to the Arizona Medical Association, are the two so honored.

Mrs. Thomas A. Hartgraves, who was Chairman of the Cancer Committee of the Woman's Auxiliary, has served as State Commander of the Arizona Division, American Cancer Society, for the past five years and has been awarded the Five-Year Distinguished Service Award for her work in this capacity.

Gratitude is expressed for the various committees as follows: Mesdames Guy B. Atonna of Douglas, Charles W. Sechrist of Flagstaff, Nelson D. Brayton of Miami, Cyril M. Cron of Miami, Clarence Gunter of Globe, Theodore C. Harper of Globe, Chester R. Swackhamer of Superior, Fonzie W. Butler of Safford, Thomas H. Bate of Phoenix, L. D. Beek of Phoenix, David E. Brinkerhoff of Phoenix, Preston T. Brown of Phoenix, Sebastian R. Caniglia of Phoenix, Donald G. Carlson of Phoenix, Paul Henry Case of Phoenix, Elton R. Charvoz of Phoenix, Matthew Cohen of Phoenix, Carlos C. Craig of Phoenix, Archie E. Cruthirds of Phoenix, Henri S. Denninger of Glendale, Frank W. Edel of Phoenix, George S. Enfield of Phoenix, Harry J. Feleh of Phoenix, A. James Fillmore of Mesa, Wesley G. Forster of Phoenix, R. Lee Foster of Phoenix,

Members of the Auxiliary, Viewing the Cancer Exhibit, at the State Convention of the Arizona Medical Association, May, 1948.



Left to Right: Mrs. George K. Rogers, Mrs. Harry T. Southworth, Mrs. Thomas H. Bate, Mrs. Thomas A. Hartgraves, Mrs. George S. Enfield, Mrs. R. Lee Foster, Mrs. Leslie R. Kober, and Mrs. Kent H. Thayer.

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Respectfully submitted,
Mrs. Matthew Cohen,
Chairman of Publicity.

PHYSICIAN-ARTISTS, BEWARE!

If you plan to exhibit at the Atlantic City Exhibition (American Medical Association, June 6-10, 1949)—NOW is the time to write for entry blanks, rules, shipping labels, etc.

Haste is necessary because your entries must reach Atlantic City between April 15 and May 9.

For details, please write airmail to Francis H. Redewill, M. D., Secretary, American Physicians Art Association, Flood Building, San Francisco, California.

Two refresher courses in Laboratory Diagnosis of Intestinal Parasites are currently being offered by the State Department of Health for Arizona laboratory personnel, physician and nurses. Dr. H. Gilbert Crecelius, director of laboratories for the State Department of Health, is in charge and will assist in conducting the sessions.

There is no charge, tuition or laboratory fee for the courses, the first of which is being con-

ducted in Tucson April 18-22 at the University laboratory and the second, April 25-29, in the laboratory of the Phoenix College.

"This is the first time such a course has been offered in the state," said Dr. Crecelius, "although one of the big health problems of the Southwest is in the infestation of human being with intestinal worms and amoeba because these parasitic diseases naturally thrive in a warm climate."

Each session is divided between laboratory exercises and lectures with laboratory classes limited to 25 students, all of whom must be laboratory personnel and must furnish their own microscopes and lamps. Lectures will be open to all who are interested.

A representative of the United States Public Health Service Communicable Disease center is assisting the State Department of Health in presenting the course.

One evening lecture during each of the two sessions will be given especially for doctors and nurses of the state.

NOTICE

The Arizona State Society of Anesthesiologists will meet May 10 in Tucson. There will be a business meeting and the annual election of officers. Members will receive notice of the hour and place of meeting.

Very sincerely yours,
Audrey Urry, M. D.,
Secretary.

ANNOUNCEMENT — AMERICAN ACADEMY OF PEDIATRICS

Publication of the national report on the findings of the recently completed 2½ year study of child health services will be marked by a dinner on April 2nd in New York City, according to an announcement of Dr. Warren R. Sisson, President of the American Academy of Pediatrics. A nationally known layman as well as an outstanding authority in medicine and public health are being invited to be guest speakers. The two-volume report which is now in press is being published by the Commonwealth Fund of New York.

SALT SUBSTITUTES

Salt substitutes containing lithium chloride are being recalled from the market by the Food and Drug Administration following reports of several deaths, which, it is claimed, followed the use of these substitutes. This applies to all preparations containing Lithium Chloride.

These products are reported to include FOOD-SAL, SALTI SAL, WEST-SAL and MILOSAL.

The Journal of the American Medical Association will publish in an early issue details of the deaths and other untoward effects said to have been caused by the use of these salt substitutes by patients on salt free diets.

J. P. Ward, M.D., M.P.H.

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